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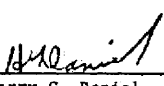
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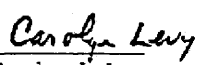
REPORT TITLE: Young Smokers  
Prevalence, Trends, Implications,  
and Related Demographic Trends

WRITTEN BY

  
Myron E. Johnston

APPROVED BY

  
Harry G. Daniel

  
Carolyn J. Levy

DISTRIBUTION:

Mr. R. Thomson  
Mr. H. Daniel  
Dr. C. Levy  
Mr. L. Meyer

Mr. J. Zoler (NYO)  
Mr. T. Goodale (NYO)

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PHILIP MORRIS U. S. A.  
INTER-OFFICE CORRESPONDENCE  
RICHMOND, VIRGINIA

To: Dr. Robert B. Seligman

Date: March 31, 1981

From: Myron Johnston

Subject: Young Smokers -- Prevalence, Trends, Implications,  
and Related Demographic Trends

For over fifteen years certain demographic and social trends have been moving in directions favorable to industry growth. Now, one by one, these powerful social and demographic factors are turning against us, and by 1985 all will be operating against us.

The trends are:

1. After increasing for over a decade, the prevalence of teenage smoking is now declining sharply.
2. After increasing for over a decade, the average daily consumption of teenage smokers is declining.
3. After increasing 18 percent from 1967 to 1976, the absolute number of 15-19 year-olds will decline 19 percent during the 1980's, with the period of sharpest decline beginning in 1981.
4. Beginning in 1981 the absolute number of 20-24 year-olds (the ages during which average daily cigarette consumption increases most rapidly) will begin to decline, after increasing for the past 20 years.
5. For the first time in a decade of polling, average daily cigarette consumption as reported on the National Panel has declined.
6. In 1985, after declining for nearly a decade, the number of people in the age group most disposed to quit smoking (ages 45-54) will begin to increase dramatically.

It is inevitable therefore, that industry sales will begin to decline within the next few years. Thus, Philip Morris USA can sustain its past rate of growth only by an acceleration of the rate of increase in market share. While this news is not good for the industry, I believe we can use these data and other data I plan to report on to good advantage in order to minimize the adverse effect on Philip Morris.

This report deals with only one of these trends--teenage smoking and attitudes toward smoking, together with related demographics. Subsequent reports will cover the social, economic and psychographic characteristics of teenage smokers and the demographics of other significant age groups.


Because the major data sources have just become available, and because of the importance of these data to the company, I have elected to report the data in a series of memoranda rather than wait and issue all of the material at once.

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Attachments

CC: Mr. R. Thomson  
Mr. H. Daniel  
Dr. C. Levy  
Mr. L. Meyer

Mr. J. Zoler (NYO)  
Mr. T. Goodale (NYO)



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### Summary

It is important to know as much as possible about teenage smoking patterns and attitudes. Today's teenager is tomorrow's potential regular customer, and the overwhelming majority of smokers first begin to smoke while still in their teens. In addition, the ten years following the teenage years is the period during which average daily consumption per smoker increases to the average adult level. The smoking patterns of teenagers are particularly important to Philip Morris: Of the eleven packings of which the median age of smokers is under age 30, seven are Philip Morris packings, and the share index is highest in the youngest age group for all Marlboro and Virginia Slims packings and for B&H Lights and Menthol.

Furthermore, it is during the teenage years that the initial brand choice is made: At least a part of the success of Marlboro Red during its most rapid growth period was because it became the brand of choice among teenagers who then stuck with it as they grew older - this combined with the rapid growth in the absolute number of teenagers. Between 1967 and 1976 the number of 15-19 year-olds in the U.S. increased 18 percent, and there was also an increase during at least part of that period in the percent of teenagers who smoked cigarettes.

Average daily consumption of these young smokers also increased, so that between 1968 and 1974 the number of 12-18 year-olds who smoked ten or more cigarettes per day more than doubled. Industry sales were also aided by the fact that this period was one of rapid increase in the number of people aged 20 to 24 - ages during which average daily consumption increases.

The prevalence of teenage smoking peaked in 1976-77 and is now declining. Furthermore, the number of 15-19 year-olds also peaked in 1976 and will decline 19 percent during the next decade.

The effect of this decline in the prevalence of teenage smoking will not become apparent for a few years. It will continue to be masked by the fact that there will be a continued increase in the number of smokers in their 20's who have high prevalence rates and are reaching ages at which the average daily consumption per smoker is near its maximum. In addition, the number of people reaching the prime quitting ages (ages 45-54) will continue to be low as a result of the small number of births during the Depression.

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In a very few years, however, there will be a reversal of these trends (see Chart 1). There will be a decline in the number of people, and an even greater decline in the number of smokers, in the age group in which average daily consumption normally increases -- the number of 20-24 year-olds will peak in 1981 and then begin an accelerating decline. Beginning in 1985 there will be an increase (which too will accelerate) in the number of people reaching the ages at which people typically begin to quit smoking or cut down (ages 45-54). We will no longer be able to rely on a rapidly increasing pool of teenagers from which to replace smokers lost through normal attrition.

The decline in the prevalence of teenage smoking has been sharper among boys than among girls, and now more girls than boys smoke cigarettes. The decline in teenage smoking has been particularly pronounced among blacks, which may account for the decline in Kool's market share. The Northeast has the highest prevalence of teenage smoking and the West has the lowest. Between 1975 and 1979 the proportion of teenagers who say they "definitely will not" be smoking five years hence has increased dramatically. The major reasons for the decline are the perceived health hazards of smoking and peer pressure not to smoke.

Because of our high share of the market among the youngest smokers, Philip Morris will suffer more than the other companies from the decline in the number of teenage smokers. For at least the next decade, however, the population trends will have a much more powerful influence, and in this regard we would appear to be the least vulnerable of all the companies, as will be discussed later in this report.

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### Teenage Smoking Prevalence 1968-1974

The best data I have on the overall prevalence of teenage smoking for the 1968-74 period comes from studies conducted by Chilton Research Services for the National Clearinghouse on Smoking and Health:

TABLE 1

Percent who are "Current Regular Smokers"\* by age, 1968-1974

	Ages 12-14	Ages 15-16	Ages 17-18
1968	1.8	13.3	24.4
1970	4.4	17.0	30.0
1972	3.7	17.0	27.8
1974	4.6	19.2	28.4

\*A current regular smoker was defined as someone who smoked one or more cigarettes per week.

Among boys, smoking prevalence increased from 1968 to 1970, declined from 1970 to 1972, and then remained essentially constant through 1974. There was a steady and dramatic increase in the number of girls who started smoking, as shown in Table 2.

TABLE 2

Percent of 15-18 year-olds  
who were "Current Regular Smokers"  
1968 - 1974

	Boys	Girls	Total
1968	23.6	14.1	18.8
1970	28.4	18.6	23.5
1972	24.0	20.8	22.4
1974	24.6	23.0	23.8

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Because the absolute number of 15-19 year-olds increased 14 percent from 1968 to 1974, the number of teenage smokers increased 44 percent during this period.

There was also an increase in the number of cigarettes these young smokers smoked, and between 1968 and 1974 the percent of young smokers who smoked 10 or more cigarettes per day nearly doubled, as shown in Table 3 below. Here too, the increase among girls was much greater than that among boys.

TABLE 3

Percent of All 12-18 year-olds  
Who Smoked 10 or More Cigarettes per Day

	Boys	Girls	Total
1968	6.7	3.3	5.0
1970	8.0	5.2	6.6
1972	8.5	6.3	7.4
1974	10.6	8.6	9.6

Again, because of the increase in the absolute number of teenagers, the number who smoked a half-pack or more per day increased 120 percent.

Teenage Smoking Prevalence 1975-1980

Until very recently there have been no good data on teenage cigarette smoking for the years after 1974. I have recently come upon two excellent sources of data on cigarette smoking. The most useful data are from the Survey Research Center at the University of Michigan. Each spring since 1975 questionnaires have been administered to high school seniors in selected schools throughout the country. The response rate has ranged from 77 to 85 percent and the total sample size from 15,000 to 19,000 (A complete description is contained in Attachment A). The major shortcoming of the data is that they do not include the approximately 15-20 percent of American youth who drop out of school before the spring of their senior year in high school. More information will be given later about this group.

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The striking thing is that, by whatever measure is used to describe smoking status, the percent of high school seniors who smoke is declining. While the percentage of seniors who have ever smoked declined significantly only in the 1978-1979 and 1979-1980 time periods, there have been substantial declines since 1977 in all of the other measures of smoking status. Table 4 shows the various measures of cigarette smoking prevalence. Chart 2 shows the percent who smoked at all in the 30 days prior to the survey, and the percent who smoked one or more, ten or more, and 20 or more cigarettes during that 30-day period. Chart 3 shows the percent of high school seniors who reported that they were current regular smokers and the total percentage of those reporting that they were current regular and current occasional smokers. Clearly, by whatever measure is used to assess smoking prevalence, it peaked in 1976 and 1977 and then began an accelerating decline.

TABLE 4

Percent of Seniors who Ever Smoked, Ever Smoked Daily, and  
Quantity Smoked in Past 30 Days

	Class of 1975	Class of 1976	Class of 1977	Class of 1978	Class of 1979	Class of 1980
Ever Smoked	73.7	75.4 <sup>b</sup>	75.8	75.3	74.0 <sup>b</sup>	71.0 <sup>a</sup>
Smoked in last 30 days	36.8	38.8 <sup>b</sup>	38.5	36.7 <sup>a</sup>	34.4 <sup>a</sup>	30.5 <sup>a</sup>
One or more per day	27.0	28.7 <sup>b</sup>	29.0	27.5 <sup>b</sup>	25.3 <sup>a</sup>	21.3 <sup>a</sup>
Ten or more per day	18.0	19.1 <sup>c</sup>	19.3	18.5	16.4 <sup>a</sup>	14.3 <sup>a</sup>
20 or more per day	9.7	9.9	10.4	9.7 <sup>c</sup>	8.4 <sup>a</sup>	7.4 <sup>a</sup>
Self-definition:						
Current Regular Smoker	22.0	23.5 <sup>b</sup>	23.9	22.8 <sup>c</sup>	20.3 <sup>a</sup>	17.4 <sup>a</sup>
Current Regular or Occasional Smoker	38.4	40.4 <sup>b</sup>	40.2	39.0 <sup>c</sup>	36.8 <sup>a</sup>	32.9 <sup>a</sup>
N	10,100	14,600	15,500	18,450	16,200	16,500

<sup>a</sup>Significantly different from preceding year  $p < .001$

<sup>b</sup>Significantly different from preceding year  $p < .01$

<sup>c</sup>Significantly different from preceding year  $p < .05$

The decline in the percent of high school seniors who smoke has been most pronounced among males, and began a year earlier among males than females, as shown in Table 5 and Chart 4. In addition, the females now report that they smoke more cigarettes per day than do the males.

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TABLE 5

Percent of Seniors by Smoking Status, by Sex 1975-1980

	<u>Class of 1975</u>	<u>Class of 1976</u>	<u>Class of 1977</u>	<u>Class of 1978</u>	<u>Class of 1979</u>	<u>Class of 1980</u>
Have Smoked in Last 30 Days						
Male	37.4	37.7	36.7	34.5	31.2	26.8
Female	35.9	39.1	39.7	38.1	37.1	33.4
Smoked One or More Cigarettes/day in Last 30 Days						
Male	27.1	27.9	27.3	26.0	22.3	18.6
Female	26.3	28.8	30.1	28.2	27.8	23.4
Smoked 10 or More Cigarettes/day in Last 30 Days						
Male	19.8	19.8	19.9	19.0	15.4	13.5
Female	16.1	18.0	19.0	18.0	17.1	14.7
Self-definition						
Current Regular Smoker						
Male	22.5	22.5	22.1	21.1	17.4	15.0
Female	21.5	24.1	25.2	24.0	22.5	19.2
Self-definition						
Current Regular or Occasional Smoker						
Male	38.8	38.9	38.4	36.3	33.2	29.3
Female	37.6	41.4	41.6	41.2	39.6	35.7

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Changes have also occurred in the ages at which these high school seniors begin to smoke on a daily basis. In 1976 more boys than girls smoked in all grades up to grade 12, when the percent of girls who smoked daily exceeded that of the boys. In 1979, by contrast, smoking by girls exceeded that of boys beginning in the 9th grade. For both sexes the modal grades of initiation of smoking has remained grade 9, but between 1976 and 1979 there has been an increase in the smoking incidence of seventh and eighth graders--dramatically so in the case of the girls. Data are shown in Table 6 and Chart 5.

TABLE 6

School Grade in which High School Seniors First Began Smoking  
on a Daily Basis, by Sex, 1976 and 1979 (Cumulative Incidence)

	Males		Females	
	1976	1979	1976	1979
Grade 6 or below	5.7	6.5	3.5	3.4
Grade 8 or below	16.4	17.8	12.6	17.0
Grade 9 or below	27.0	25.1	23.0	27.1
Grade 10 or below	34.5	31.5	32.2	35.5
Grade 11 or below	41.5	36.4	41.0	42.4
Grade 12 or below	44.6	38.8	46.1	46.5
Never Smoked Daily	55.4	61.2	53.9	53.5

It was mentioned above that these data refer only to high school seniors and therefore exclude the approximately 15 - 20 percent of American youth who do not complete high school. Their exclusion does not materially affect the results for two reasons:

- 1) These dropouts, as noted, constitute only about 15-20 percent of the teenage population and this proportion has not changed during the last ten years, and
- 2) Other studies conducted in 1970 and in 1979 show about the same ratio between the smoking prevalence of dropouts and of high school graduates, with dropouts roughly 30 to 40 percent more likely to smoke by the time they are 17-19 years old than those who do complete high school. If we adjust the data for high school seniors to include the dropouts, the total smoking prevalence for American 18 year-olds would be as follows:

TABLE 7

Percent of 18 year olds  
Who Smoke One or More Cigarettes per day.

	Males	Females	Total
1975	28.9	27.9	28.4
1976	29.8	30.4	30.1
1977	28.9	31.8	30.4
1978	27.5	29.9	28.7
1979	23.7	29.5	26.6

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### Smoking Prevalence and Educational Aspirations

It has long been known that among adults, smoking prevalence is inversely related to educational attainment. It is therefore not surprising that smoking prevalence among teenagers is also related to educational aspirations, as shown in Table 8 and Chart 6.

TABLE 8

Percent of Seniors who Ever Smoked, Ever Smoked Daily and  
Quantity Smoked in Past 30 Days  
by Educational Aspirations, Class of 1979

	<u>Plan to Complete College</u>	<u>Do Not Plan 4 years of College</u>
Ever Smoked	68.1	80.1
Ever Smoked Daily	43.2	66.0
Smoked in last 30 days	26.0	43.0
One or more per day	17.0	33.9
Ten or more per day	9.7	23.3
20 or more per day	4.4	12.7
Self-definition:		
Current Regular Smoker	13.1	27.5
Current Regular or Occasional Smoker	29.4	44.2

It is interesting that the differences between the college-bound and the non-college-bound increase with the degree of commitment to cigarette smoking. Thus those intending to complete four years of college are about 85 percent as likely to have ever smoked as the non-college group, but are about half as likely to have smoked at least one cigarette per day in the past 30 days, and are only about a third as likely to smoke a pack or more per day. Put another way, of the non-college group who ever smoked, 51 percent smoked in the 30 days prior to the survey in contrast to 34 percent of the college bound ever-smokers. Thus while the trial rates for the two groups are about the same, the college-bound are less likely to become daily smokers.

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Another valuable source of data is provided by the Cooperative Institutional Research Program at The University of California at Los Angeles. Data are based on questionnaires administered to entering freshmen in 300-400 colleges and universities throughout the country. Sample sizes are 180-190,000 (Details are shown in Attachment A). One series of questions concerned whether the respondents had engaged in various activities frequently, occasionally, or not at all during the previous year, i.e., their senior year in high school for 92-94 percent of the respondents.

The questions concerned such activities as jogging, drinking beer, staying up all night, working in political campaigns, and smoking cigarettes. Unfortunately, these questions were not asked every year and we therefore have no data for the years from 1972 through 1977. It appears that there was a steady decline in the overall prevalence of cigarette smoking among college freshmen from 1966 through 1979, but, as noted, we know nothing about the period from 1972 through 1977. It is clear, however, that the prevalence in 1979 was substantially lower than in any year for which data are available. Chart 7 shows the college freshmen data as well as the data for high school seniors with and without college plans.

The college data also show striking differences between the sexes, as shown in Table 9 and Chart 8. While smoking prevalence among college freshmen males appears to have declined steadily since 1966, the prevalence among females declined from 1966 to 1968 (perhaps in response to the Surgeon General's report), and then began to increase. These data, like the high school senior data, show a substantially higher smoking prevalence among females than among males.

TABLE 9

Percent of College Freshmen Who  
"Smoked Cigarettes Frequently" During  
the Past Year"

	<u>Males</u>	<u>Females</u>	<u>Total</u>
1966	19.4	13.2	16.6
1968	18.4	12.0	15.6
1971	16.8	12.7	14.9
1978	10.6	17.1	13.9
1979	9.7	16.7	13.3

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It is not only the presence or absence of college plans that is predictive of cigarette smoking, but also the type and quality of the school chosen. In general, people who choose to attend two year colleges have lower educational aspiration than those who attend four year institutions. It is also generally true that people with higher aspirations will attend more selective schools. The college data show an interesting gradation, with the highest prevalence of smoking in the two-year institutions and the lowest in the universities with the highest selectivity, as shown in Table 10 (Selectivity is determined by the average SAT scores of entering freshmen in each institution).

TABLE 10  
Percent of College Freshmen Who  
"Smoked Cigarettes Frequently" During  
the Past Year, by  
Type and Selectivity of Institution, 1979

Type of Institution	Males	Females
Two-year Colleges	12.5	21.1
Four-year Colleges	8.1	13.9
Universities	7.6	13.4
Low Selectivity	9.3	14.2
Medium Selectivity	7.7	14.3
High Selectivity	4.9	10.7

The entire question of the relationship between cigarette smoking and educational attainment raises additional questions as to the smoking behavior of teenagers who do not complete high school, as well as the future smoking behavior of college freshmen. Are high school dropouts more likely to smoke than those who graduate? Are students who go to college simply late in beginning to smoke? Finally, are college students less likely than in the past to begin smoking once they get to college?

The National Institute of Education longitudinal study (described in Attachment A) casts some light on these questions. In this study a group of 12-18 year-olds first surveyed in 1974 were recontacted in 1979 when they were then 17-23 years of age. Table M shows their smoking status in 1974 and 1979 by school enrollment status and highest level of education completed for those who were not enrolled in 1979 and for those enrolled in school, by class. It can be seen that among both males and females, school dropouts had higher smoking prevalences in both 1974 and 1979 than those who had completed high school, and that considerably fewer of the college educated were smokers. It is interesting that educational attainment is much more highly correlated with smoking among males than among females: Among males, dropouts were more than three times as likely as the college educated to be smokers at the time of the first survey, while female dropouts were only about 50 percent more likely to smoke. Among adults there is also a stronger correlation for males than for females between educational attainment and smoking prevalence, but the difference between the sexes is much less pronounced. Of perhaps even greater interest is the fact that the smoking-education relationship among these young females is slightly weaker than among adult females, while for males the relationship is considerably stronger than among adult males.

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TABLE 11  
Smoking Status in 1974 and 1979  
By Educational Attainment and Enrollment

	Male		Female	
	Percent Smoked	Percent Smoked	Percent Smoked	Percent Smoked
	<u>1974</u>	<u>1979</u>	<u>1974</u>	<u>1979</u>
In School in 1979				
High School	0.0	16.3	1.1	22.6
College Freshman or Sophomore	8.6	15.2	6.4	19.3
College Junior or Senior	5.4	12.2	5.4	23.0
Not in School in 1979				
Not High School Graduate	36.2	55.3	26.1	50.0
High School Grad, No College	22.0	40.1	20.3	36.4
Some College or College Grad.	12.0	20.5	17.3	28.6

Thus, among those still enrolled in school there is indeed a continued increase in the incidence of cigarette smoking during the college years, and the increase is much more pronounced among the females than among the males. A close examination of the data (not shown) discloses that all of the increase among the males (but not the females) was contributed by boys who were 12-14 at the time of the first survey (17-19 and mainly college freshmen and sophomores in 1979). Among the older males there were as many smokers who quit as there were non-smokers who started to smoke.

This continued increase in cigarette smoking during the first year of college was observed in another study. The Youth in Transition Study (Institute for Social Research, University of Michigan - details in Attachment A) surveyed 2200 boys in the 10th grade in the fall of 1966 and followed them through the spring of 1970. Table 12 shows the percent who were regular cigarette smokers, (here defined as "nearly every day") during the senior year of high school and the first year after school. It is not surprising that those entering the military should show the greatest increase in the conversion of nonsmoking to smoking status. It is quite likely that many of the college-bound boys reported in high school as non-smokers were in fact ex-smokers who had quit smoking while participating in athletics and had resumed smoking in college, for the study also showed an inverse relationship between smoking prevalence and the number of extra-curricular activities in which they participated, and most of the extra-curricular activities reported were sports.

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TABLE 12

Percent Regular Cigarette Smokers  
by Post-High School Environment

	<u>N</u>	<u>Smoked During High School</u>	<u>Smoked One Year After High School</u>
College	827	19	25
Trade School	117	31	38
Employed	559	53	55
Military	144	54	60
Other*	151	55	59
Total	1796	36	41

\*Unemployed or still in High School

It is clear, therefore, that there is a strong negative relationship between educational attainment and smoking prevalence and that among males this relationship is stronger than in the past. It is also true that those who do smoke are beginning to smoke at earlier ages, particularly the females. This appears not only in the comparison of the 1976 and 1979 data but also when those data are compared to data for the adult population.

It is also clear that high school dropouts are indeed more likely to smoke than those who complete high school. We can also answer a tentative yes to the question as to whether young people continue to take up cigarette smoking after they get to college. The question as to whether this is now less true than in the past must await additional data.

#### Race Differences in Smoking Prevalence

Among high school seniors, blacks are much less likely to smoke cigarettes than whites. This appears to be a very recent development. The 1970 Youth in Transition study, while based on a smaller sample, showed prevalence rates ("almost every day") in their senior year of 37 percent among white males and 41 percent among black males. The present data on high school seniors show that in 1976 a larger (though not significantly so) proportion of blacks than whites

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smoked within the 30 days prior to the survey. The decline in the prevalence of smoking among blacks appears to have begun earlier than among whites and has been more pronounced. Between 1976 and 1980 the number of whites who described themselves as current regular smokers dropped 5.8 percentage points, from 23.9 percent to 18.1 percent. Among blacks the decline was 9.7 percentage points, from 20.7 to 11.0 percent. During this period those who said they had smoked in the past 30 days declined from 38.3 to 31.0 percent among whites and from 39.7 to 25.2 percent among blacks. Data showing various measures of smoking prevalence for blacks and whites are shown in Table 13 and Chart 9.

TABLE 13

Percent of Seniors by Smoking Status, by Race, 1976-1979

	<u>Class of 1976</u>	<u>Class of 1977</u>	<u>Class of 1978</u>	<u>Class of 1979</u>	<u>Class of 1980</u>
Have Smoked in Last 30 Days					
White	38.3	38.4	37.0	34.9	31.0
Black	39.7	34.4	31.5	28.7	25.2
Smoked One or More Cigarettes/day in Last 30 Days					
White	28.8	29.0	27.7	25.9	21.8
Black	26.7	23.7	22.1	19.4	15.9
Smoked 10 or More Cigarettes/day in Last 30 Days					
White	20.1	20.6	19.7	17.3	15.3
Black	11.7	10.2	9.5	8.4	6.1
Self-definition Current Regular Smoker					
White	23.9	24.3	23.5	20.9	18.1
Black	20.7	17.7	16.3	13.5	11.0
Self-definition Current Regular or Occasional Smoker					
White	40.9	40.5	39.8	37.7	33.6
Black	37.3	34.8	31.7	28.5	27.2

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Even though a larger proportion of blacks than whites drop out before completing high school, the difference is not great enough to alter the basic conclusion that smoking prevalence is now lower among black teenagers than among whites.

Blacks are not only less likely to smoke than whites, but the average daily consumption of those who do smoke is lower than among whites. We have long observed this to be true of the smokers on the POL National Panel, and the high school senior data also show this to be true. In 1976, 20.1 percent of the whites and 11.7% of the blacks smoked ten or more cigarettes per day. By 1979, the percentages were 15.3 and 6.1 respectively.

It appears that education is much more highly related to cigarette smoking among blacks than among whites. In every year for which there are college freshmen data the smoking prevalence in predominantly black institutions is substantially lower than in all institutions, as shown in Table 14 and Chart 10.

TABLE 14  
Percent of College Freshmen Who  
"Smoked Cigarettes Frequently" During  
the Past Year

	<u>All Institutions</u>	<u>Predominantly Black Institutions</u>
1966	16.6	N.A.
1968	15.6	10.4
1971	14.9	10.9
1978	13.9	10.4
1979	13.3	10.2

It is also of interest that, contrary to the situation prevailing in all institutions, the prevalence of cigarette smoking in predominantly black institutions changed very little between 1968 and 1979.

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Taken together, these data suggest that a larger proportion of blacks than whites smoked in the early 1970s but that the sharper decline in smoking incidence among blacks has now resulted in a larger proportion of smokers among whites. When blacks do begin to smoke on a daily basis they begin, on the average, about a year later than the whites, as shown in Table 15.

TABLE 15

School Grade in which Seniors First Began Smoking  
on a Daily Basis, by Race, 1976 and 1979

	1976		1979	
	White	Black	White	Black
By Grade 6	4.6	3.8	4.8	4.0
By Grade 8	14.8	10.0	18.3	11.1
By Grade 9	25.2	18.6	27.1	19.5
By Grade 10	33.4	28.0	34.0	28.8
By Grade 11	40.9	38.2	40.4	32.9
By Grade 12	44.7	44.6	43.4	37.6
Never Smoked				
Daily	55.3	55.4	56.6	62.4

If these trends continue, this more rapid decline among blacks in the percent who smoke, coupled with their much lower rates of consumption, will make blacks a less significant factor in the market than in the past, in spite of the fact that the black population is growing more rapidly than the population as a whole. Because blacks, and especially young blacks, constitute a disproportionately large share of the menthol market, a continuation of these trends could well signal a coming decline in menthol market share. It is interesting to speculate as to what extent this decline in smoking prevalence among black teenagers has contributed to the decline of Kool.

1000390822

### Regional Differences in Smoking Prevalence.

By whatever measure of cigarette smoking one chooses, the West has by far the lowest prevalence of smoking among high school seniors, and on most measures the Northeast has the highest (Table 16). This pattern was true in 1968 and 1970 and in all years from 1975 through 1980 (no data are available on high school students for 1971-74). Curiously, in 1970, adults in the West had a higher prevalence of cigarette smoking than adults in the other regions, while the teenage boys in the West had the lowest rates. What makes this of interest is that the conventional wisdom has long held that parental smoking behavior is one of the best predictors of adolescent smoking behavior.

TABLE 16

Percent of Seniors who Ever Smoked, Ever Smoked Daily and  
Quantity Smoked in past 30 Days, By Region, 1980

	<u>North East</u>	<u>North Central</u>	<u>South</u>	<u>West</u>
Ever Smoked	71.7	73.6	71.6	64.2
Smoked in Past 30 days	34.1	31.5	31.8	21.1
One or more per day	24.2	22.0	22.7	13.9
Ten or more per day	17.0	15.4	14.6	8.3
20 or more per day	8.9	8.4	7.5	3.5
Self-definition:				
Current Regular Smoker	20.1	18.5	17.8	10.7
Current Regular or Occasional Smoker	35.5	34.6	33.9	24.0
N =	3877	4873	5049	2726

Also in 1970, a considerably larger percentage of the boys in the South and Midwest became regular smokers one year after high school than did boys in the Northeast and West. (Seven percent in the South, six percent in the Midwest, two in the Northeast and one in the West.) This is consistent with the 1972 college data (reported below) in which the regions, ranked in descending order of smoking prevalence, were Northeast, South, Midwest, and West (Table 17).

1000390823

In the six year period for which we have the best data on high school seniors (1975-1980) the prevalence of smoking peaked one year later in the Northeast than in the rest of the country (1977 in the Northeast and 1976 in the other regions). Declines from the peak year have been highest in the Northeast and lowest in the West, where the peak was already quite low (Chart 11). High school students in the Northeast also begin to smoke at an earlier age and, although regional differences became less pronounced during the period, Southerners in 1976 were the latest to begin to smoke.

The college freshmen data show roughly the same pattern, with those in the Northeast most likely and those in the West least likely to say that they smoked cigarettes during the past year. The college freshmen data, however, show higher rates of smoking prevalence in the South than in the North Central region, the reverse of the pattern observed among high school seniors. This may well be because of differences between these two regions in the proportions of entering freshmen attending two-year as opposed to four-year institutions. Two-year institutions have long accounted for a larger proportion of first year college students in the South than in the North Central states and, as noted above, the smoking prevalence is higher in two-year colleges. In addition, a fairly large proportion of high school graduates in the Northeast go to college in the South. Data for entering college freshmen are shown in Table 17 and Chart 12.

TABLE 17

Percent of Entering College Freshmen Who  
Smoked Cigarettes During the Previous Year

	1968		1979	
	Males	Females	Males	Females
Northeast	20.8	16.1	11.1	21.4
Northcentral	17.1	10.2	8.3	12.4
South	19.6	11.0	9.4	13.9
West	15.9	9.2	7.2	10.9

1000390824

There are also regional differences in the average number of cigarettes smoked per day by the high school seniors who do smoke, and again we find that average daily consumption is highest in the Northeast and lowest in the West, with the Northeast and North Central regions showing the sharpest decline from 1975 to 1979, as shown in Table 18.

TABLE 18

Average Daily Cigarette Consumption  
Per Smoker, 1975 and 1979, by Region\*

	<u>1975</u>	<u>1979</u>
Northeast	13.3	12.3
North Central	12.5	11.6
South	11.8	11.5
West	11.2	11.3

\*Based only on those who smoke one or more cigarettes per day.

#### Future Smoking Expectations

In the National Institute of Education longitudinal study it was found that the best predictor of future smoking behavior of teenagers was the respondent's own assessment of the likelihood of his smoking in the future. For this reason it is illustrative to look at the responses of the high school seniors to the question "Do you think you will be smoking cigarettes five years from now?" Data for the classes of 1975 through 1979 are shown in Table 19 and Chart 13.

TABLE 19

Responses to the Question "Do you think  
you will be smoking cigarettes five years from now?"

	<u>Class of 1975</u>	<u>Class of 1976</u>	<u>Class of 1977</u>	<u>Class of 1978</u>	<u>Class of 1979</u>
Definitely will	1.0	1.2	1.5	0.6	0.6
Probably will	27.4	20.5	18.2	16.6	14.4
Probably will not	31.0	28.1	29.4	28.2	27.5
Definitely will not	40.6	50.1	50.9	54.5	57.4

1000390825

There is a fairly steady decline over the entire period in the percent of the respondents who indicate that they definitely or probably will be smoking five years hence, and a concomitant increase in the percent who said they definitely will not be smoking cigarettes. The sharp change between the classes of 1975 and 1976 may well have been the result of the series of Reader's Digest articles on the gasses in cigarettes that appeared at about the time of the 1976 survey.

It was noted above that there are now more teenage girls than boys who smoke. This is also reflected in smoking intent, as shown in Table 20 and Chart 14. In both 1975 and 1979, girls indicated a greater likelihood than boys that they would be smoking in five years. While the future smoking probabilities declined for both sexes between 1975 and 1979, the boys changed somewhat more than the girls in the direction of not smoking. In any event, to the extent that attitudes and intentions do predict behavior, these data portend a continued decline in the share of teenagers and, later, the adult population, who smoke cigarettes, as well as an increase in the share of smokers who are female.

TABLE 20

Responses to the Question "Do you think  
you will be smoking cigarettes five years from now?"  
1975 and 1979, by Sex

	Male		Female	
	1975	1979	1975	1979
Definitely will	1.3	0.2	0.7	0.6
Probably will	24.8	11.6	29.7	16.3
Probably will not	31.5	25.0	30.5	29.2
Definitely will not	42.4	62.9	39.1	53.9

The regional differences in smoking anticipations are not as pronounced in 1979 as the regional differences in current smoking status, as shown in Table 21 and Chart 15. The West is again the region with the smallest proportion who expect to be smoking in five years, but the other three regions have converged and are moving in the direction already reached by high school seniors in the West.

1000390826

TABLE 21

Percent of Seniors Who Said They "Definitely Would" or  
"Probably Would" Be Smoking Cigarettes  
Five Years From Survey Date

	<u>North East</u>	<u>North Central</u>	<u>South</u>	<u>West</u>
1975	38.7	27.6	24.4	21.7
1976	23.1	23.0	24.0	12.8
1977	22.8	20.6	19.1	13.4
1978	19.6	18.4	17.2	10.6
1979	16.7	16.9	16.5	6.9
Percent Change (1975-1979)	-57%	-39%	-32%	-68%

#### Reasons for the Decline in Teenage Smoking

There is no question but that peer pressure is important in influencing the young not to begin smoking. A decade and more ago it was a major reason why teenagers began to smoke. Now it is a major reason for their not beginning to smoke. Perceived parental disapproval of teenage smoking has remained constant over the past five years, as has the level of teenagers' own disapproval of adult smoking. Perceived peer disapproval of teenage smoking, however, has increased sharply in 1980 (Chart 16).

This decline in teenage smoking is also attributable in large part to the anti-smoking propaganda: The high school seniors were asked "How much do you think people risk harming themselves (physically or in others ways), if they...Smoke one or more packs of cigarettes per day." The percent answering "great risk" increased from 51 percent in 1975 to 65 percent in 1980, with the sharpest increases in 1976 and 1979. The perceived risk of smoking one or more packs of cigarettes per day is now 20 percentage points higher than the perceived risk of smoking marihuana regularly, and is higher than the perceived risk of trying heroin once or twice (Chart 17).

1000390827

### Conclusions and Implications

The decline in the percent of teenagers who smoke, their decreased levels of consumption, and the decline in their absolute numbers mean that the industry can no longer rely on an ever increasing pool of teenage smokers to replace adult smokers lost through natural attrition. The particularly sharp decline in the percent of black teenagers who smoke suggests a future decline in menthol market share, and the overall decline in teenage smoking, particularly among males, will undoubtedly have some adverse effect on Marlboro.

This decline in teenage smoking, combined with (1) the decline in the number of 20-24 year-olds, (2) the end of the decline in the number of 45-54 year-olds, and, (3) the end of the steady increase in the average daily consumption per smoker, should cause industry sales to begin to decline in the next five years.

By the mid-1980's, the number of 25-29 year-olds (ages during which average daily consumption increases to the average adult level) will also begin to decline, and the number of 45-54 year-olds (the prime quitting ages) will begin to increase sharply. These trends should cause a fairly substantial decline in industry sales in the last half of this decade.

While the news is bad for the industry, it is not as bad for Philip Morris. Because we have our highest share index among the youngest smokers, we will suffer more than the other companies from the decline in the number of teenage smokers. Over the next decade, however, the population trends will have far more impact on cigarette sales, and in this regard we are well positioned. We have a high share of smokers under age 30, and, although they will begin to decline in number, the increased average daily consumption of smokers in their 20's will, other things being equal, result in increased unit sales to those younger age cohorts even after total industry sales begin to decline. To the extent to which we can hold on to our present smokers, or catch them with another of our brands when they switch, we are the least vulnerable of the companies to these population trends. Of our brands, B & H appears most vulnerable.

1000390828

PLANS

1. A total of 12 questions concerning cigarette smoking were asked in the Survey Research Center (SRC) study of high school seniors (see Attachment A). Four were covered in this report and I plan to cover the rest in subsequent reports or memos.
2. The published data from the SRC breaks out the data only by four single variables (sex, race, region, and college plans). An analysis of combinations of the variables would be useful, as would crossing the cigarette smoking data with the 18 socio-economic and behavioral characteristics covered in the studies. Accordingly, I have prepared cross-tabulation formats and asked for a price quote for these breakouts for a more detailed analysis.
3. It is planned to summarize the results of journal articles on psychological and behavioral correlates of teenage cigarette smoking.
4. After additional young panelists are recruited for the National Panel we plan to conduct a psychographic study of 18-21 year old smokers and nonsmokers using the Edwards Personal Preference Inventory to see if smokers of different brands, types or delivery levels differ on the needs measured by that instrument.
5. Computer tapes containing data from other surveys have been ordered and those data will be studied and reported on.

1000390829

Attachment A

Description of Data Sources

1000390830

## ATTACHMENT A

### Description of Data Sources

In the past we have had to make do with data on teenage cigarette smoking from small samples using techniques that were frequently questionable. Because the major data sources used in this study of teenage smoking are the best I have seen, a description of these sources seems appropriate.

#### Survey Research Center Data on High School Seniors

The most valuable source is the data on high school seniors from the Monitoring the Future project, conducted by the Survey Research Center (SRC) of the University of Michigan. The basic research design for this study involves annual data collection from high school seniors during the spring of each year, beginning with the class of 1975. Each data collection takes place in approximately 125 public and private high schools selected to provide an accurate cross-section of high school seniors throughout the conterminous United States.

The procedure for securing the sample is a multi-stage one. The first stage is the selection of 74 primary areas, including the 12 largest metropolitan areas which contain about 30 percent of the U.S. population. These are the same sampling areas that are used for the interview studies conducted by the SRC. The second stage is the selection of schools within the sampling areas. In major metropolitan areas more than one school is usually included. The third stage is the selection of the students within the school. In schools with fewer than 400 seniors, all of these are usually surveyed, and in larger schools a random sample is selected. Each year half of the schools are newly selected and the other half are carry-overs from the previous year. In this way the half-samples can be compared to see if any observed year-to-year changes were the result of the use of different schools, and so far the half-samples and total samples have yielded virtually identical results. These procedures have resulted in the sample sizes and student response rates shown below.

Sample Sizes and Student Response Rates

	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>
Number of Public Schools	111	108	108	111
Number of Private Schools	14	15	16	20
Total Number of Schools	125	123	124	131
Number of Participating Students	15,792	16,678	18,436	18,924
Student Response Rate	78%	77%	79%	83%

Questionnaires are administered in the classrooms by SRC personnel and students are repeatedly reassured as to the confidentiality of the data. Five separate questionnaires are used and contain a total of about 1300 variables. Some of the variables, including all of the demographic variables and the major questions on cigarette, alcohol and drug usage, are contained on all five questionnaire forms. The questions on cigarette smoking asked on all five questionnaires were:

1. Have you ever smoked cigarettes?
  - Never
  - Once or twice
  - Occasionally but not regularly
  - Regularly in the past
  - Regularly now
2. How frequently have you smoked cigarettes during the past 30 days?
  - Not at all
  - Less than one cigarette per day
  - One to five cigarettes per day
  - About one-half pack per day
  - About one pack per day
  - Two packs or more per day

1000390832

Other questions regarding cigarette smoking were asked on some but not all of the questionnaires:

1. When did you FIRST  
....Smoke cigarettes on a daily basis?
2. Have you ever tried to stop smoking and found that you could not?
3. Do you want to stop smoking now?
4. Do you think you will be smoking cigarettes five years from now?
5. How many of your friends would you estimate  
....Smoke cigarettes?
6. At any time during the LAST 12 MONTHS, have you felt in your own mind that you should REDUCE or STOP your use of  
....cigarettes?
7. Do you think that people (who are 18 or older) should be prohibited by law from doing each of the following?  
....Smoking tobacco in certain specified public places.
8. Do YOU disapprove of people (who are 18 or older) doing each of the following?  
....Smoking one or more packs of cigarettes per day
9. How do you think your PARENTS feel (or would feel) about your doing each of the following things?  
....Smoking one or more packs of cigarettes per day
10. How do you think your CLOSE FRIENDS feel (or would feel) about YOUR doing each of the following things?  
....Smoking one or more packs of cigarettes per day
11. How much do you think people risk harming themselves (physically or in other ways if they ....  
....Smoke one or more packs of cigarettes per day

Two of these questions (1 and 4 above) have been covered in some detail in the present report, and four others (questions 8, 9, 10, 11) in somewhat less detail. The others will be covered in subsequent memos or reports.

1000390833

Cooperative Institutional Research Program Data on College Freshmen

These data are useful because of the size and representativeness of the sample and the time period covered (1966 to date). Unfortunately there is only one question on cigarette smoking and it was not asked in the surveys in 1972 through 1977. The data are reported separately for men and women, and for 18 different groupings of institutions. The major stratifying factors are race (predominantly black vs. predominantly white), type (two-year college, four-year college, university), control (public, private-nonsectarian, Catholic, and Protestant), and the "selectivity level" of the institution, which is an estimate of the average academic ability of the entering class (based on the average SAT scores of incoming freshmen).

Virtually all institutions that have entering freshman classes are invited to participate (2688 were invited in 1979 and 593 accepted), but only the data from those where the coverage of entering freshmen is judged to be representative are used. Four-year colleges are included if over 85 percent of their first-time full-time freshmen completed the form; universities must have 75 percent participation and two-year colleges 50 percent. A large percentage of institutions are regular participants: of those participating in the 1978 survey, 93.3 percent participated again in the 1979 survey. For example, Princeton, CUNY, VPI and VMI have participated all 14 years, the Naval Academy for the last ten years, and the University of Richmond for the last four years. An elaborate weighting procedure is used to compensate for the disproportionate sampling of institutions within each stratification cell and for the different response rates. The number of institutions and students participating and included in the analysis are shown below.

	<u>Institutions and Students Participating and Included</u>			
	<u>1966</u>	<u>1971</u>	<u>1978</u>	<u>1979</u>
Institutions Participating	307	487	566	560
Institutions Included	251	326	383	362
Students Participating	254,480	288,526	289,641	289,814
Students Included	NA	171,509	187,603	190,151

1000390834

The questionnaire is administered during registration, freshman orientation, or the first few weeks of classes and covers a wide range of demographic data but, unfortunately, includes only one question on cigarette smoking: It was embedded in a "list of things that students sometimes do," and responses were frequently, occasionally, or not at all.

#### The 1970 Youth in Transition Longitudinal Study

This study was also conducted by the Survey Research Center. Although the data contained in it are over ten years old, this study is of interest because it contains longitudinal data, which, when used in conjunction with the more recent, but inferior, National Institute of Education longitudinal study (see below) provides some valuable insights. The study deals with attitudes, behavior, and demographic and socio-economic factors related to the use of alcohol, cigarettes and drugs by boys in high school and one year after high school. The study followed a panel of 2200 boys from the Fall of 1966, when they were in the tenth grade, to the Spring of 1970, a year after high school graduation for the great majority. The sampling procedures for selecting the participants were identical to those described for the Survey Research Center study described above. The initial contact consisted of a two-hour personal interview, a questionnaire and a battery of tests, and achieved a 97 percent response rate. Subsequent contacts were by interview and questionnaires, and participants were assured as to the confidentiality of the data.

#### National Institute of Education Studies 1968 - 1974

These studies monitored the smoking behavior of 12-18 year-olds through surveys in January of 1968, 1970, 1972, 1974, and 1979. Interviews were conducted by Chilton Research Services of Philadelphia by long-distance telephone (in the 1968 survey some of the interviews were face-to-face). Stratified probability samples were selected using a three-stage procedure: First the telephone exchanges were selected, followed by a selection of householders within the exchange area, and then a teenager in the household was selected. The sample sizes are quite small (fewer than 200 of each sex and age for 1970-79) but this source does provide data for years prior to 1975 and for ages under 18.

1000390835

The National Institute of Education 1979 Longitudinal Study

In this study an attempt was made to contact the respondents to the 1974 study (described above) in order to determine which of a variety of attitudinal, family, and socio-economic variables were the best predictors of smoking after five years had elapsed. The sample sizes were quite small, but the data are consistent with the data from the Youth in Transition study (described above) and are therefore useful.

1000390836

Attachment B

Charts

1000390837

CHART 1  
POPULATION TRENDS, 1960-1990

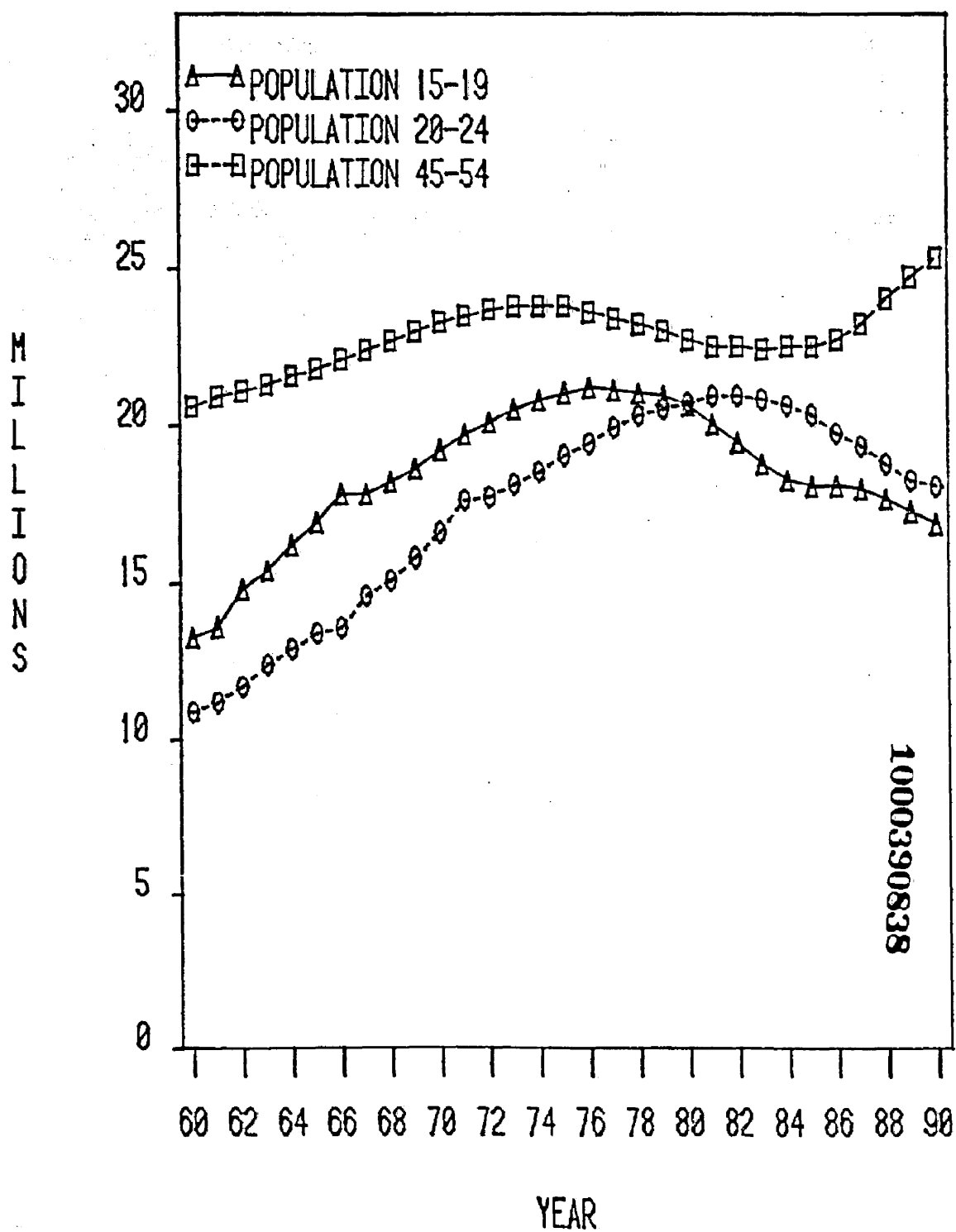


CHART 2  
VARIOUS MEASURES OF SMOKING, 1975-1980

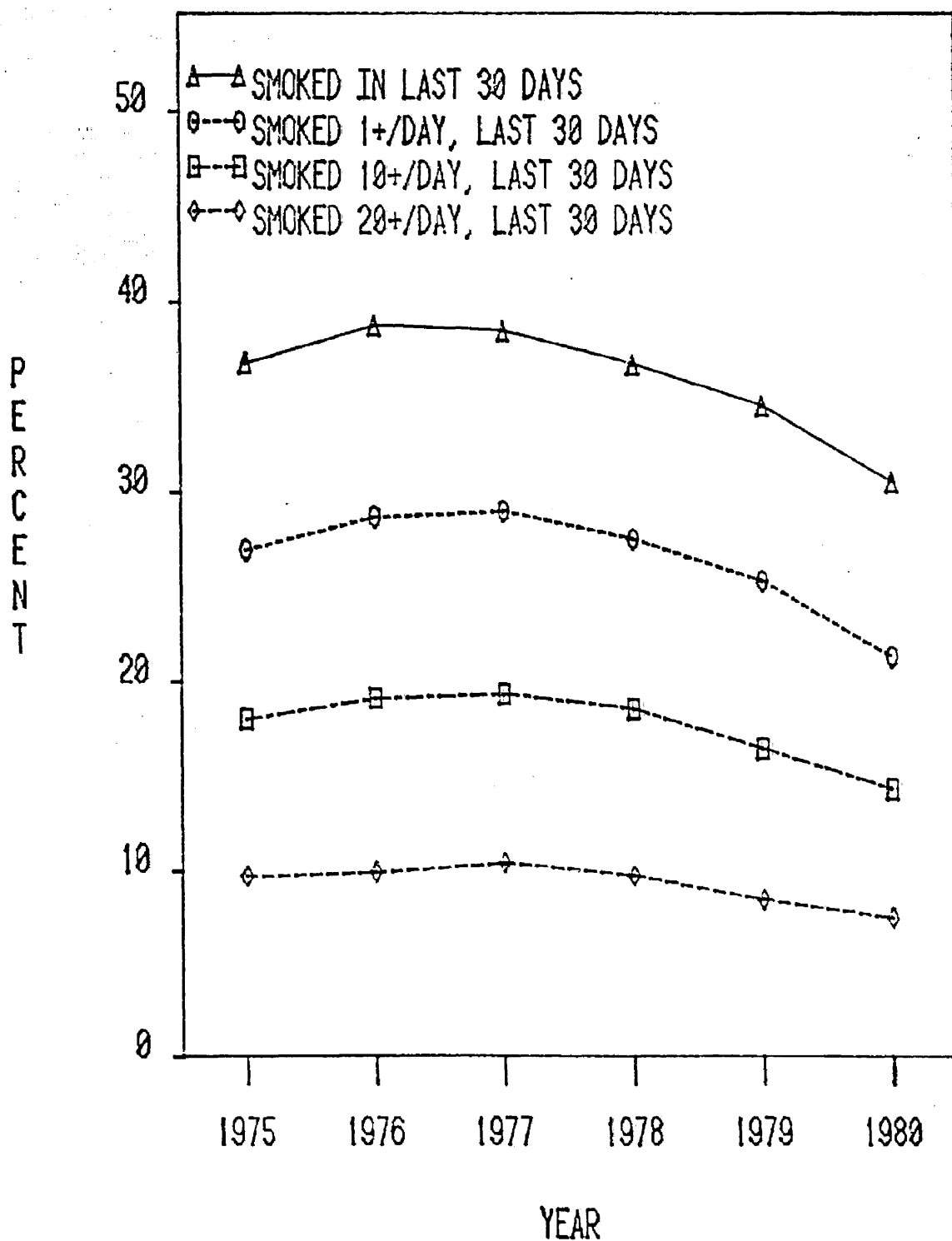


CHART 3  
SELF-DEFINITION OF SMOKING STATUS

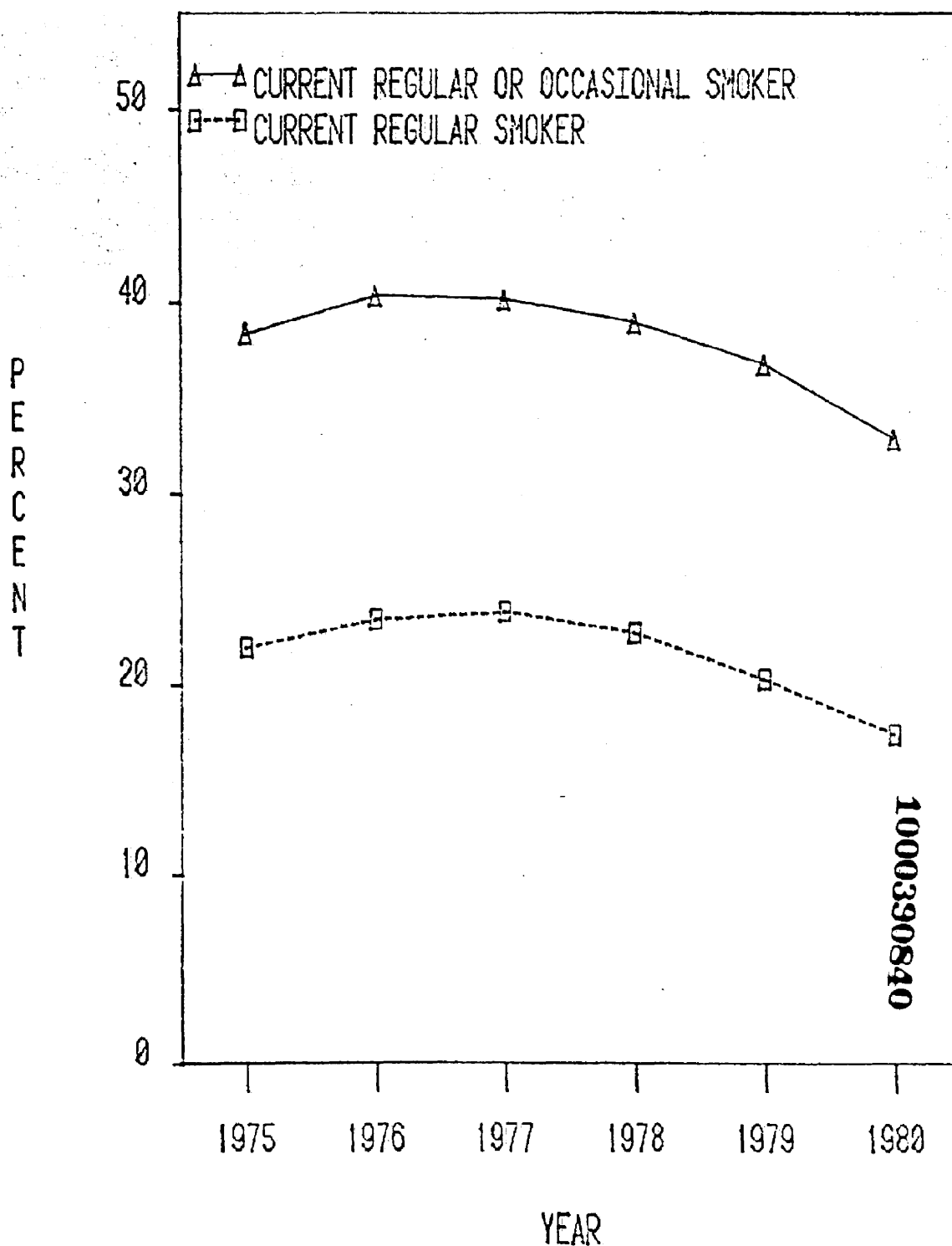
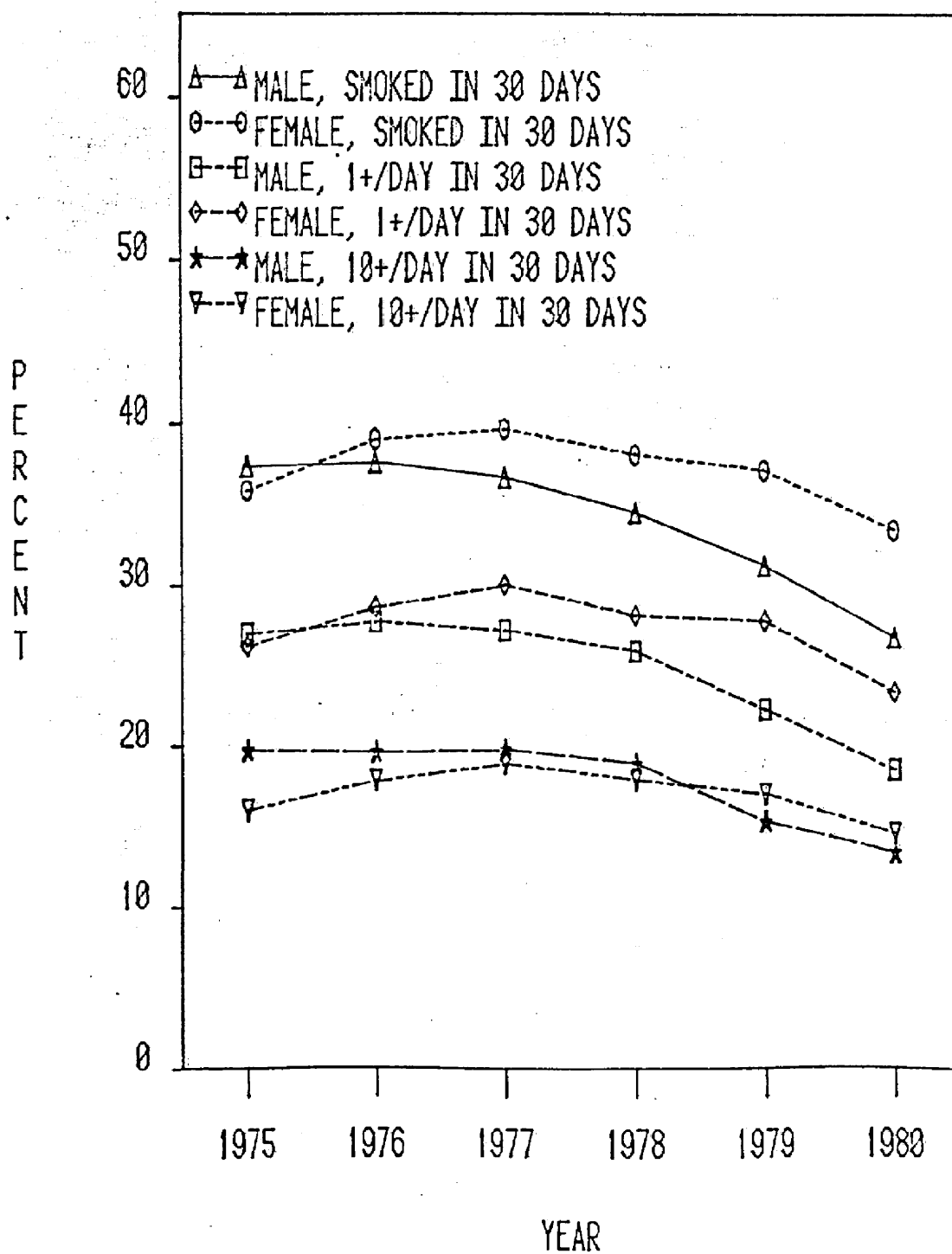
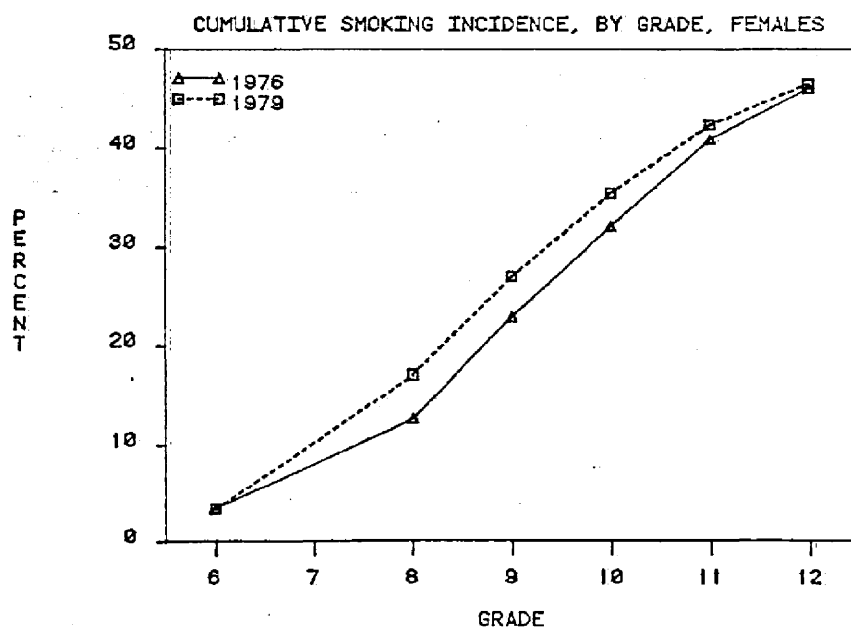
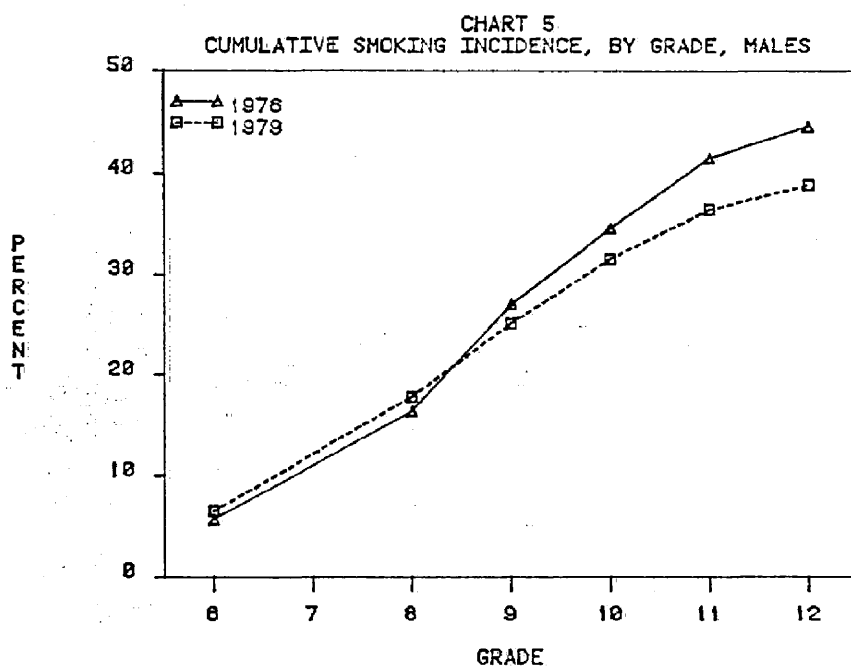


CHART 4



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CHART 6  
SMOKED ONE OR MORE PER DAY IN LAST 30 DAYS

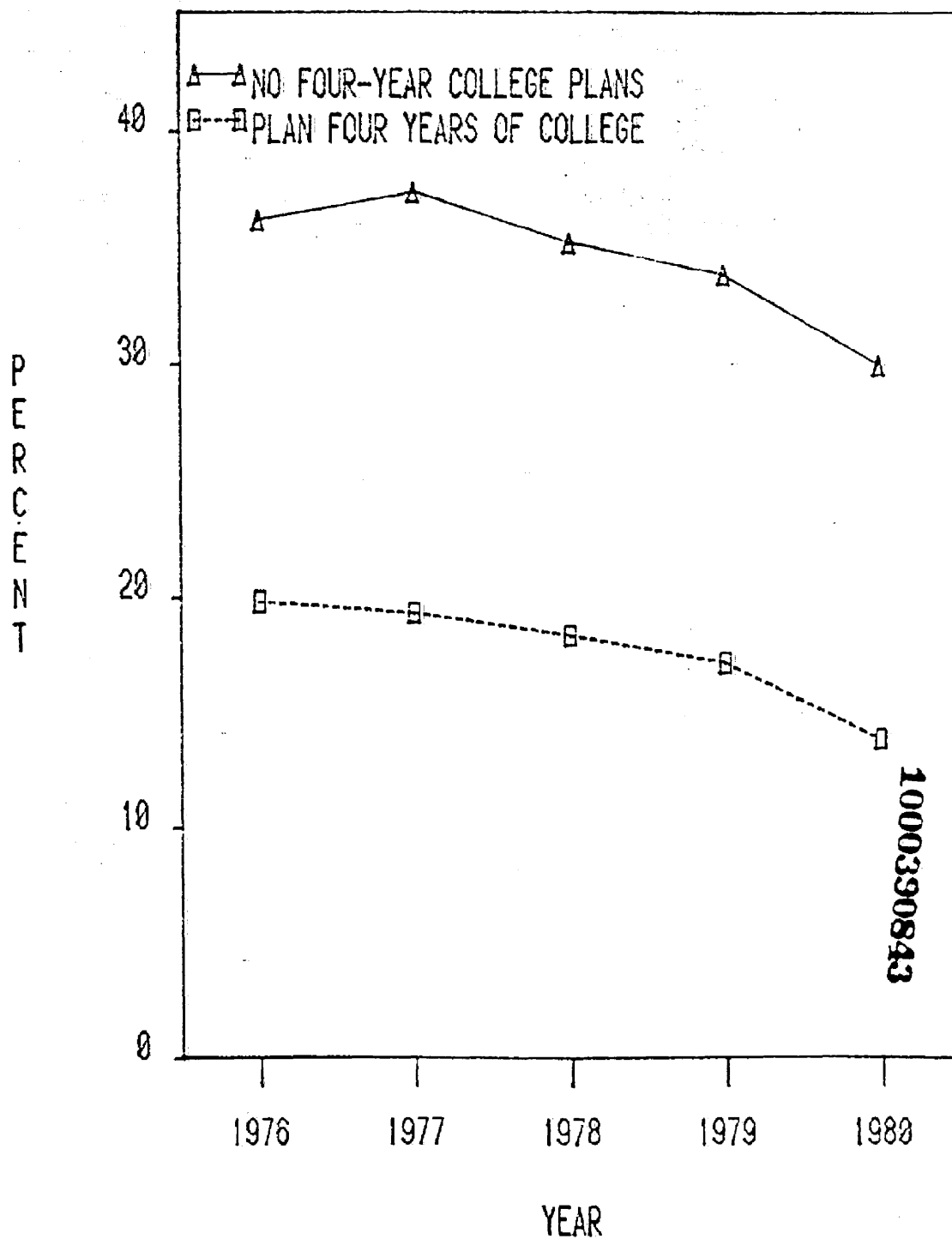
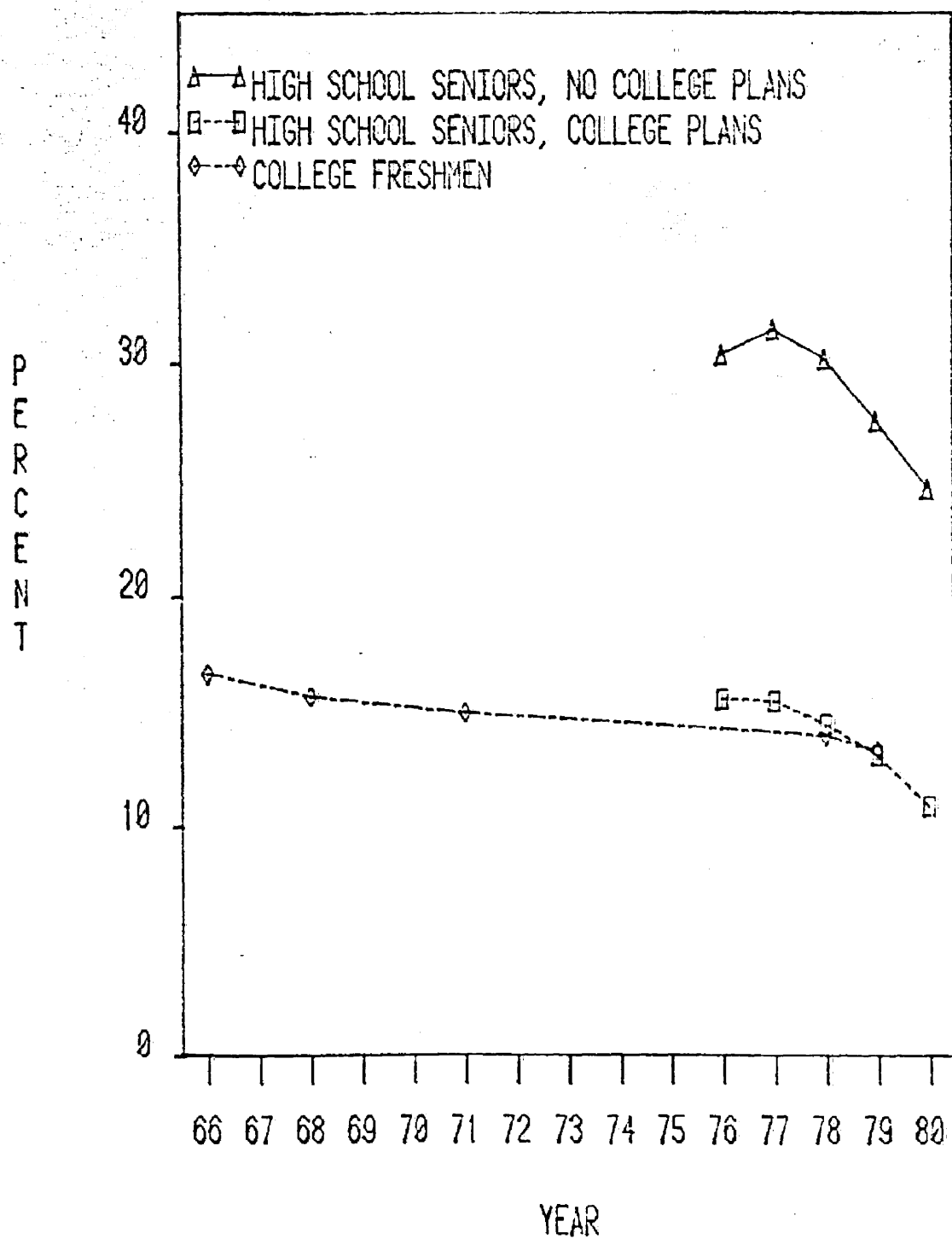


CHART 7  
CURRENT REGULAR SMOKERS, H.S. AND COLLEGE



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CHART 8  
SMOKED CIGARETTES FREQUENTLY IN PAST YEAR

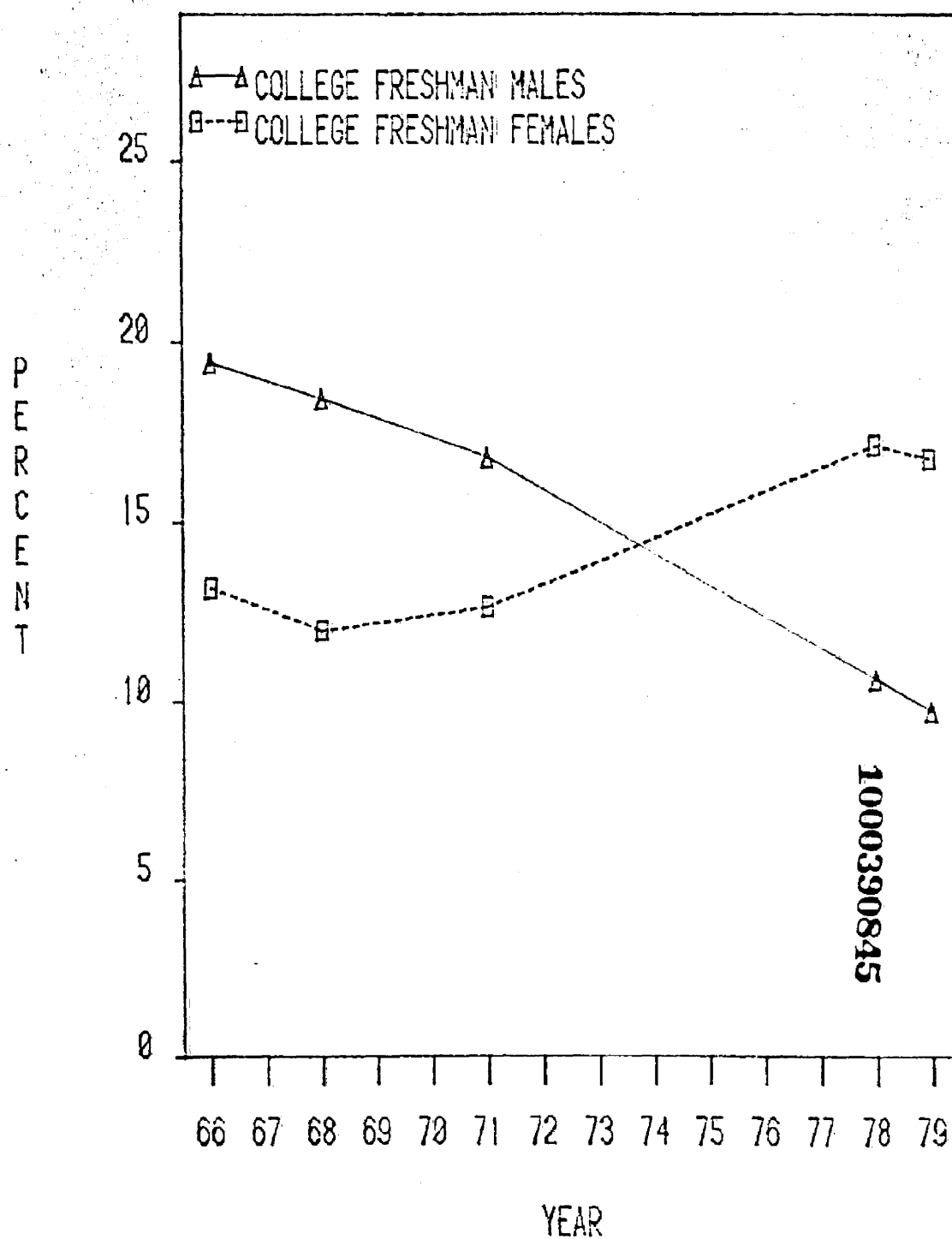
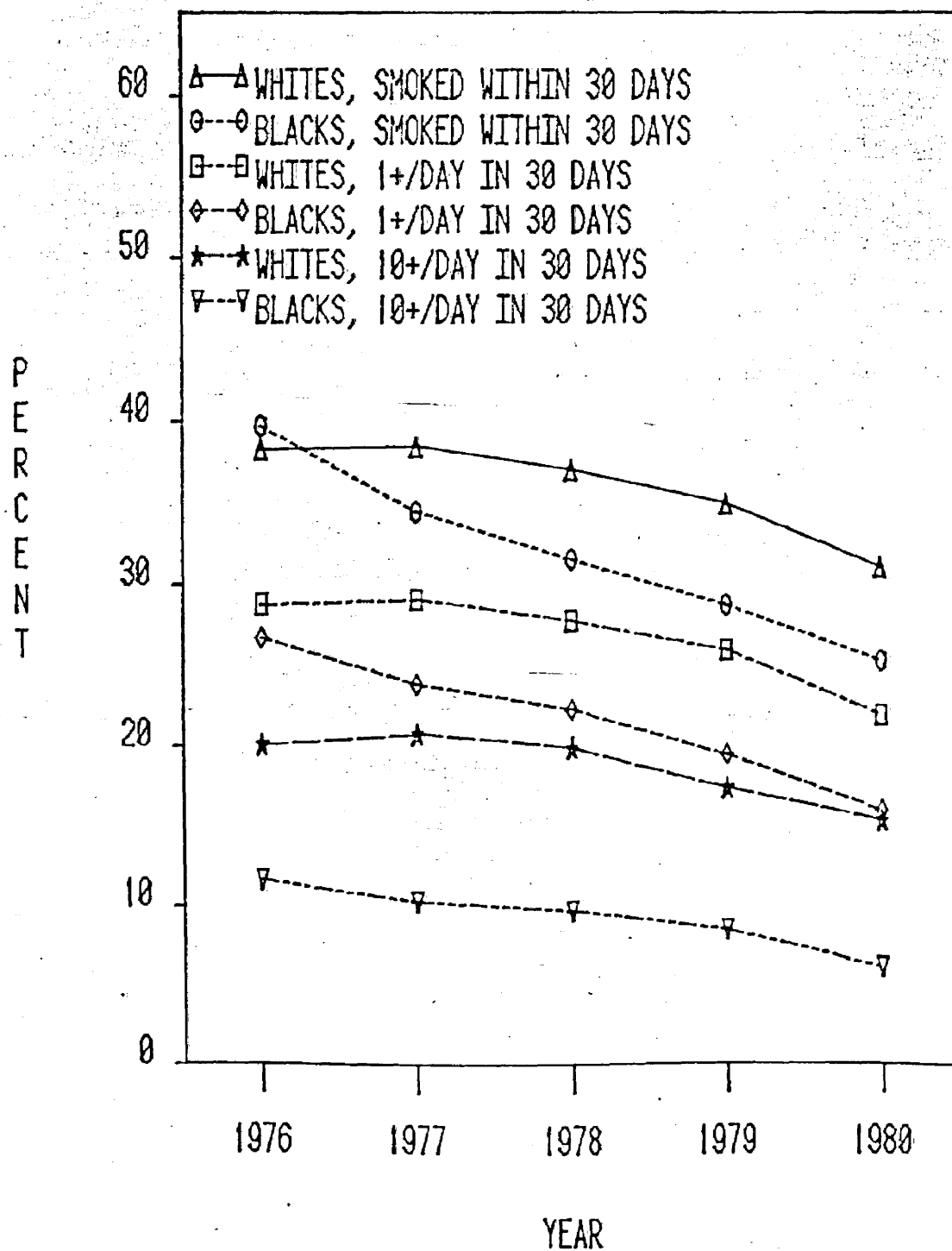
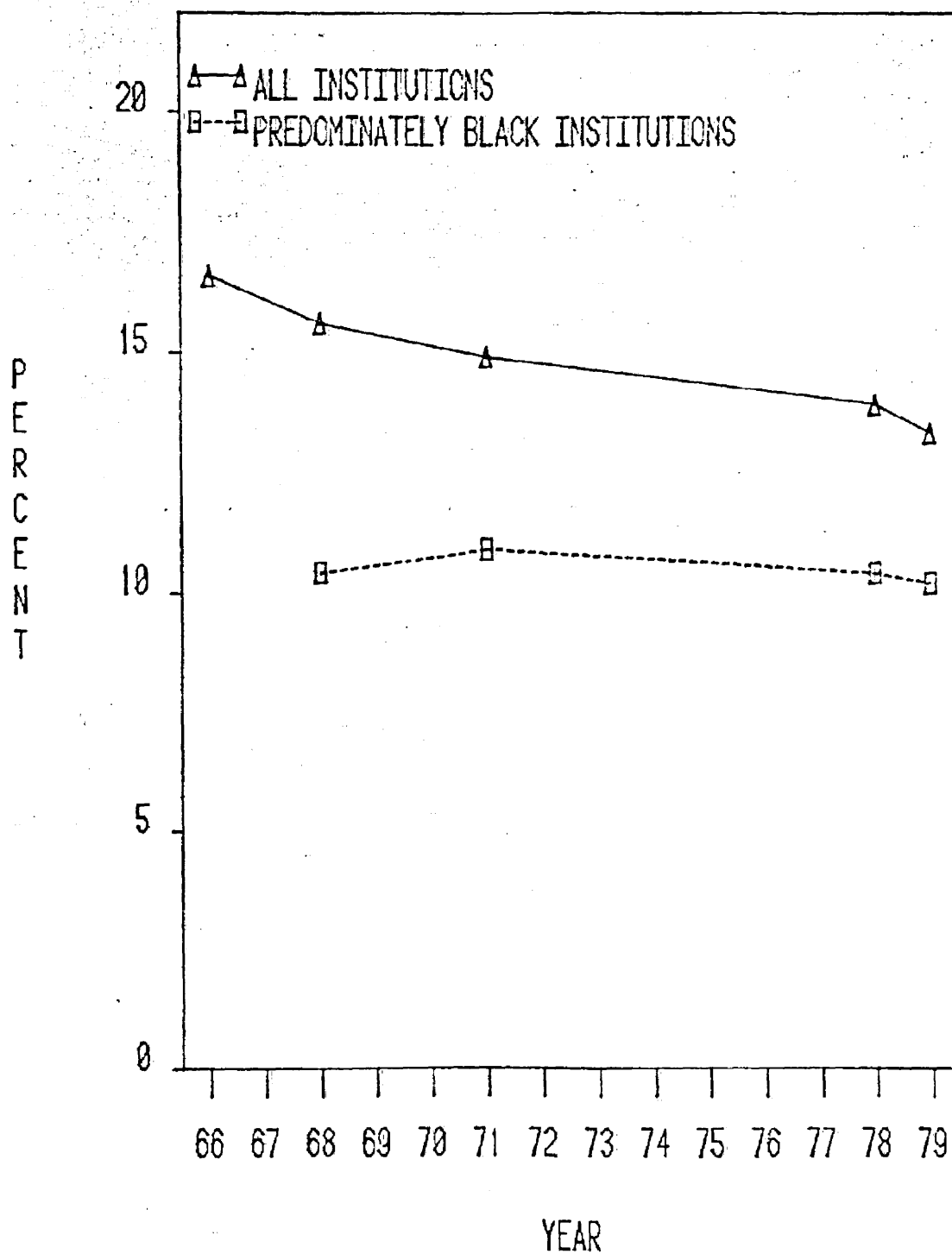


CHART 9



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CHART 10  
SMOKED FREQUENTLY PAST YEAR, COLLEGE FRESHMEN



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CHART 11  
SMOKED 1+/DAY IN LAST 30 DAYS

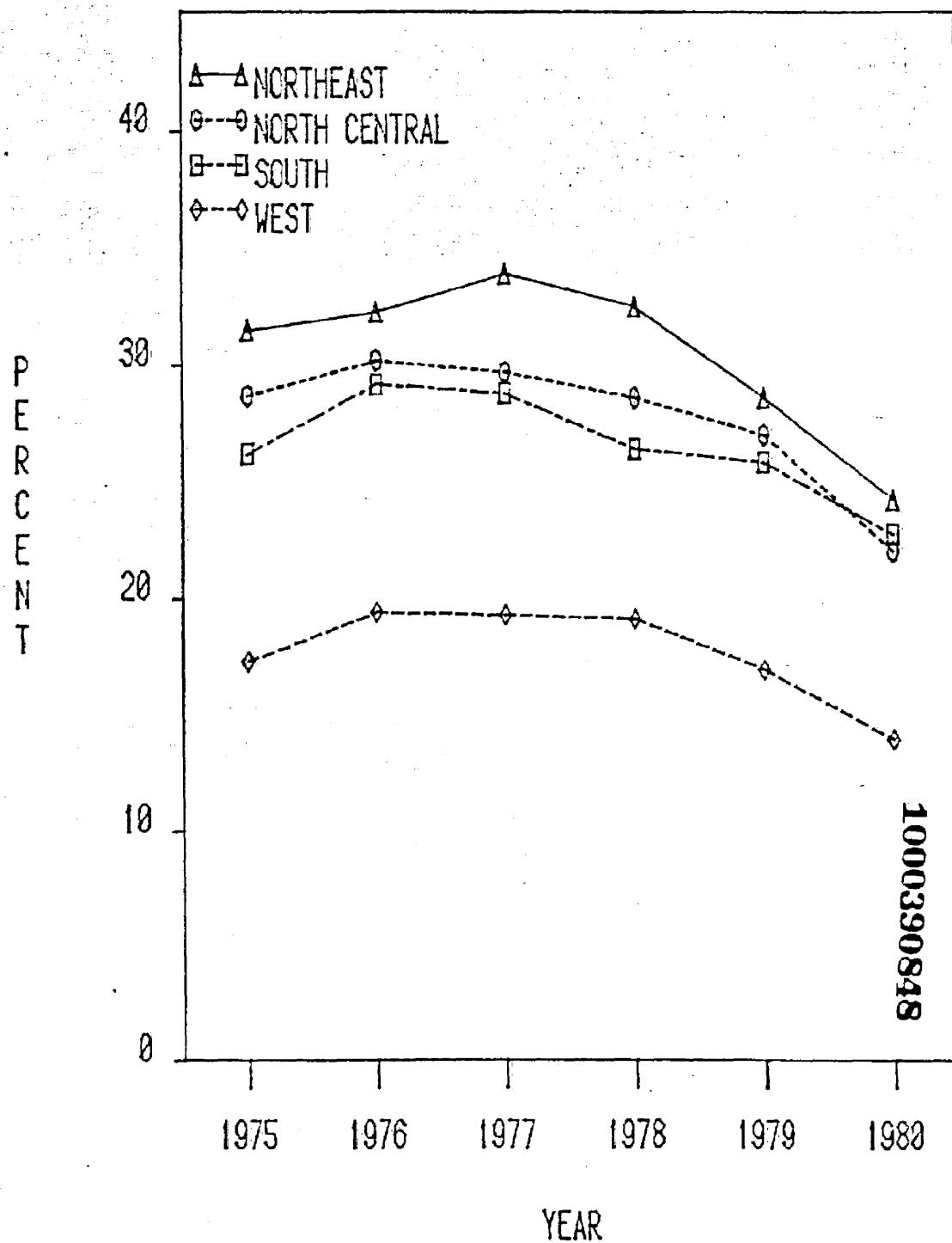
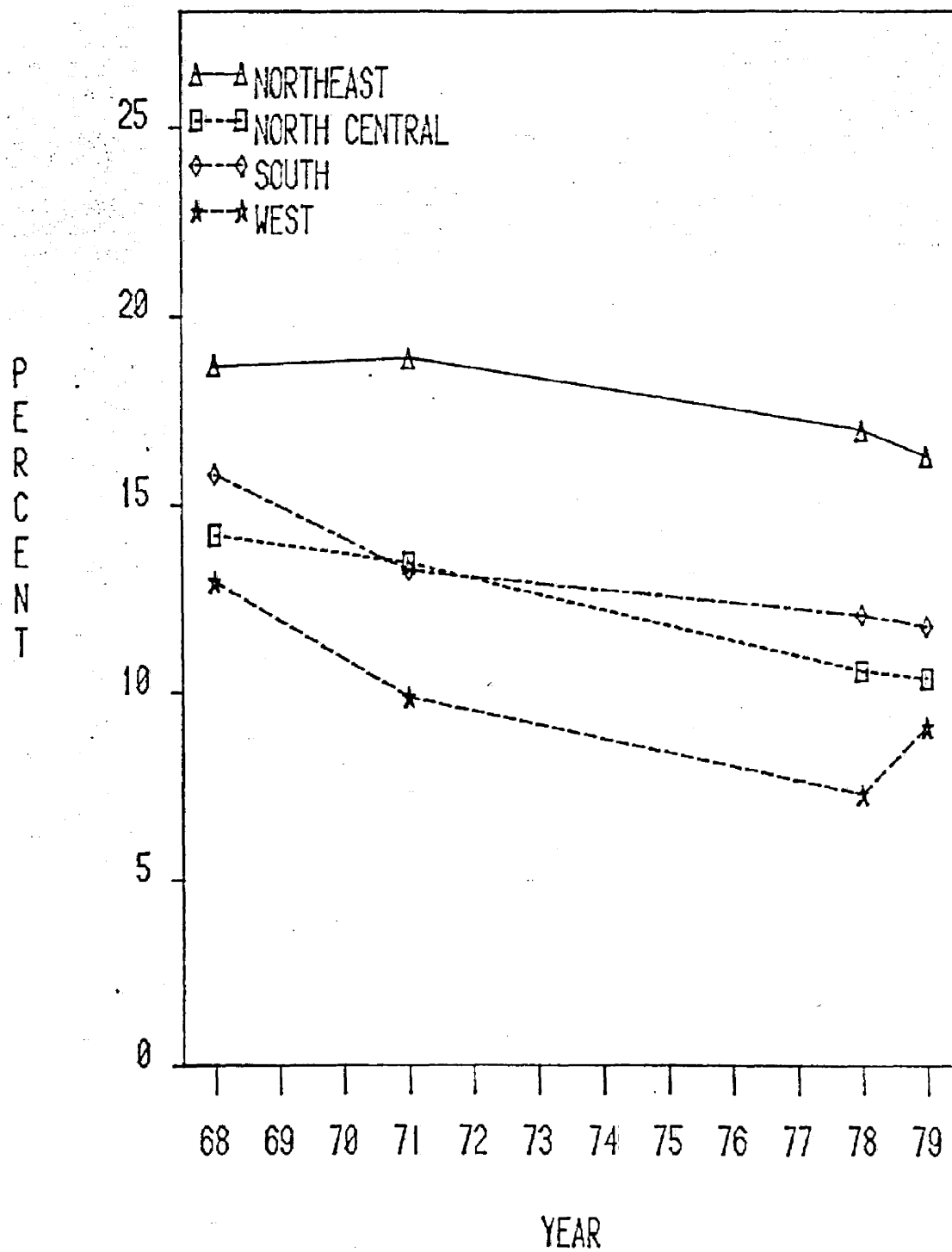


CHART 12  
SMOKED FREQUENTLY PAST YEAR, COLLEGE FRESHMEN



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CHART 13  
SMOKING PROBABILITIES FIVE YEARS HENCE

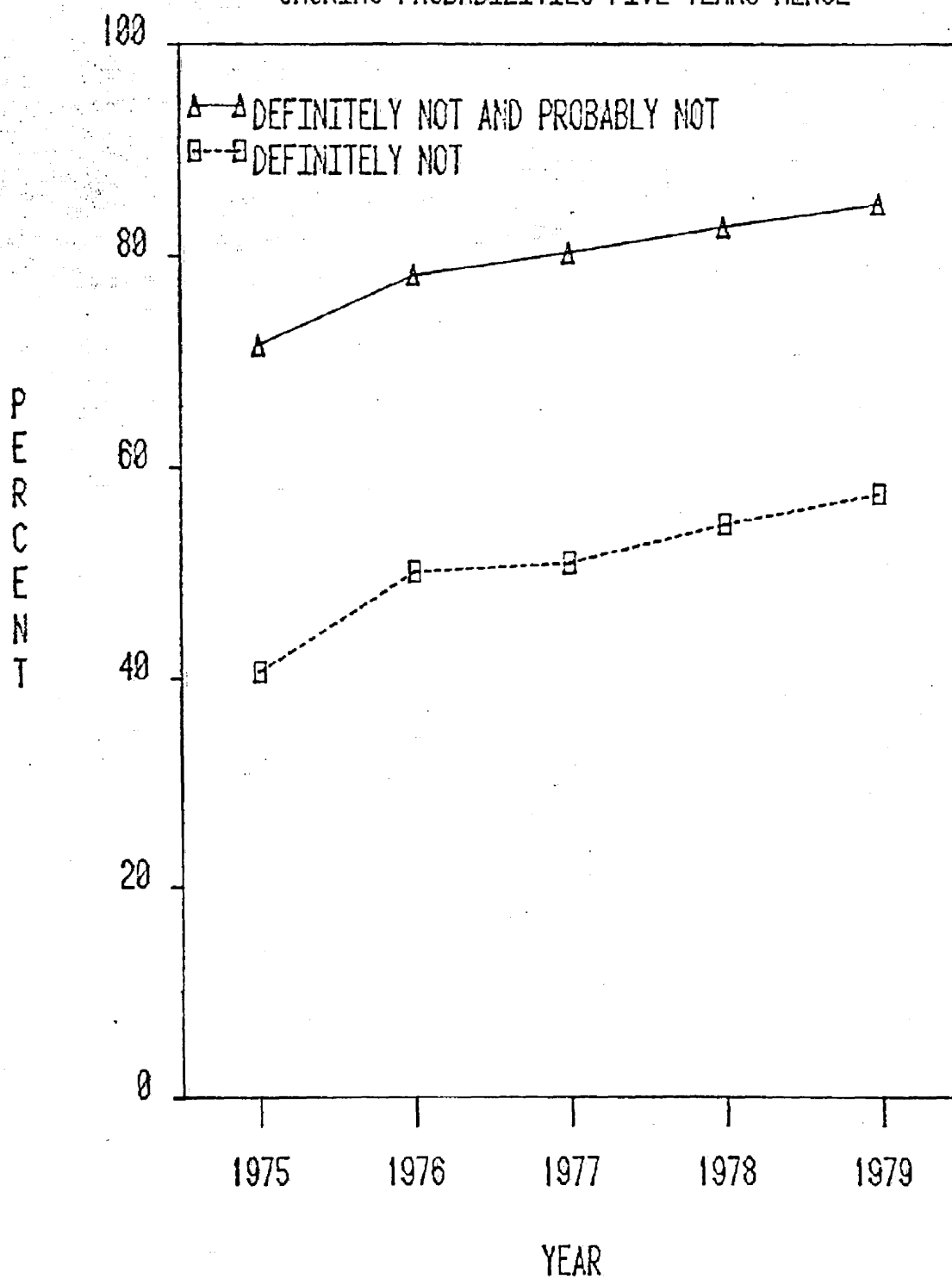


CHART 14  
SMOKING PROBABILITIES FIVE YEARS HENCE

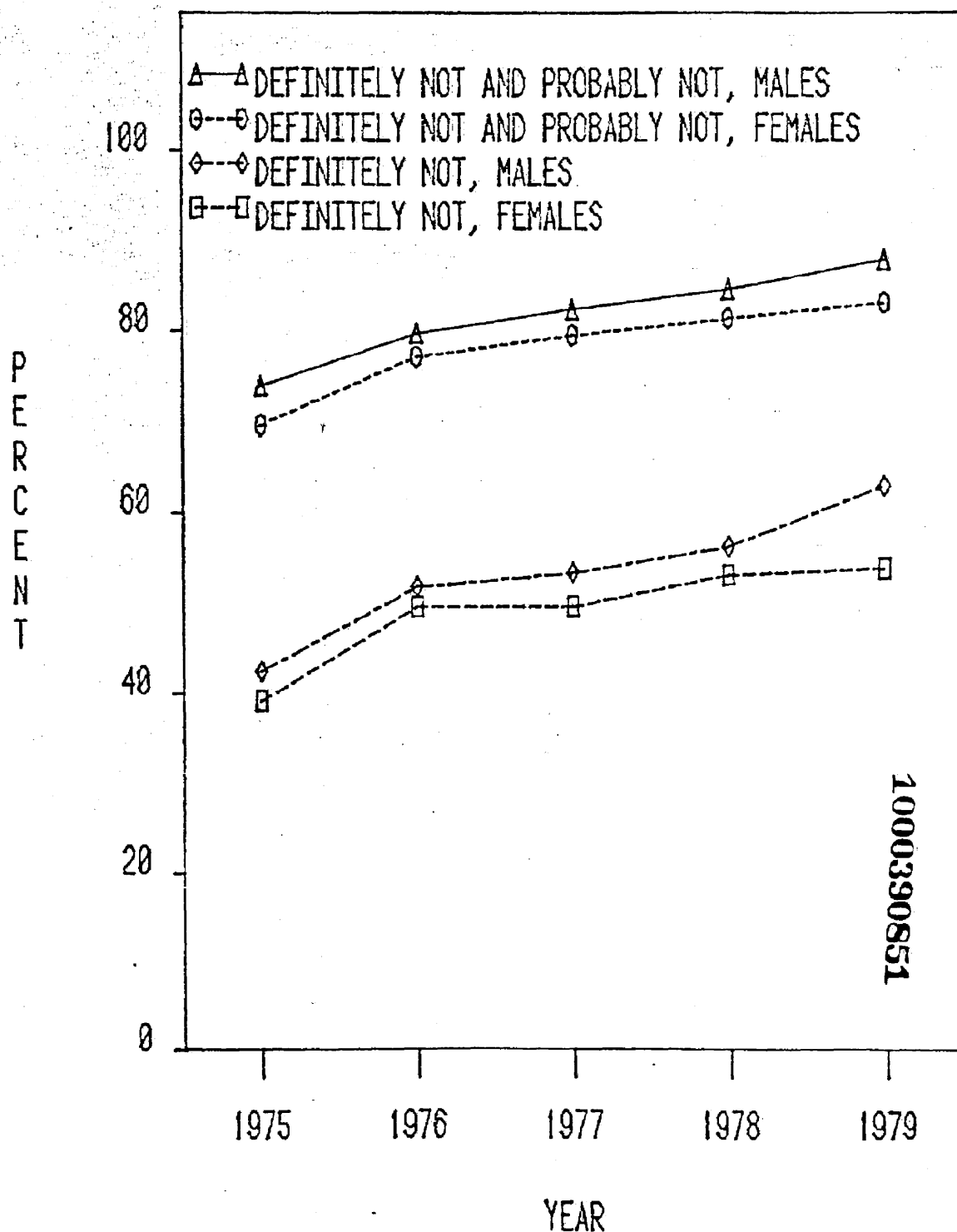
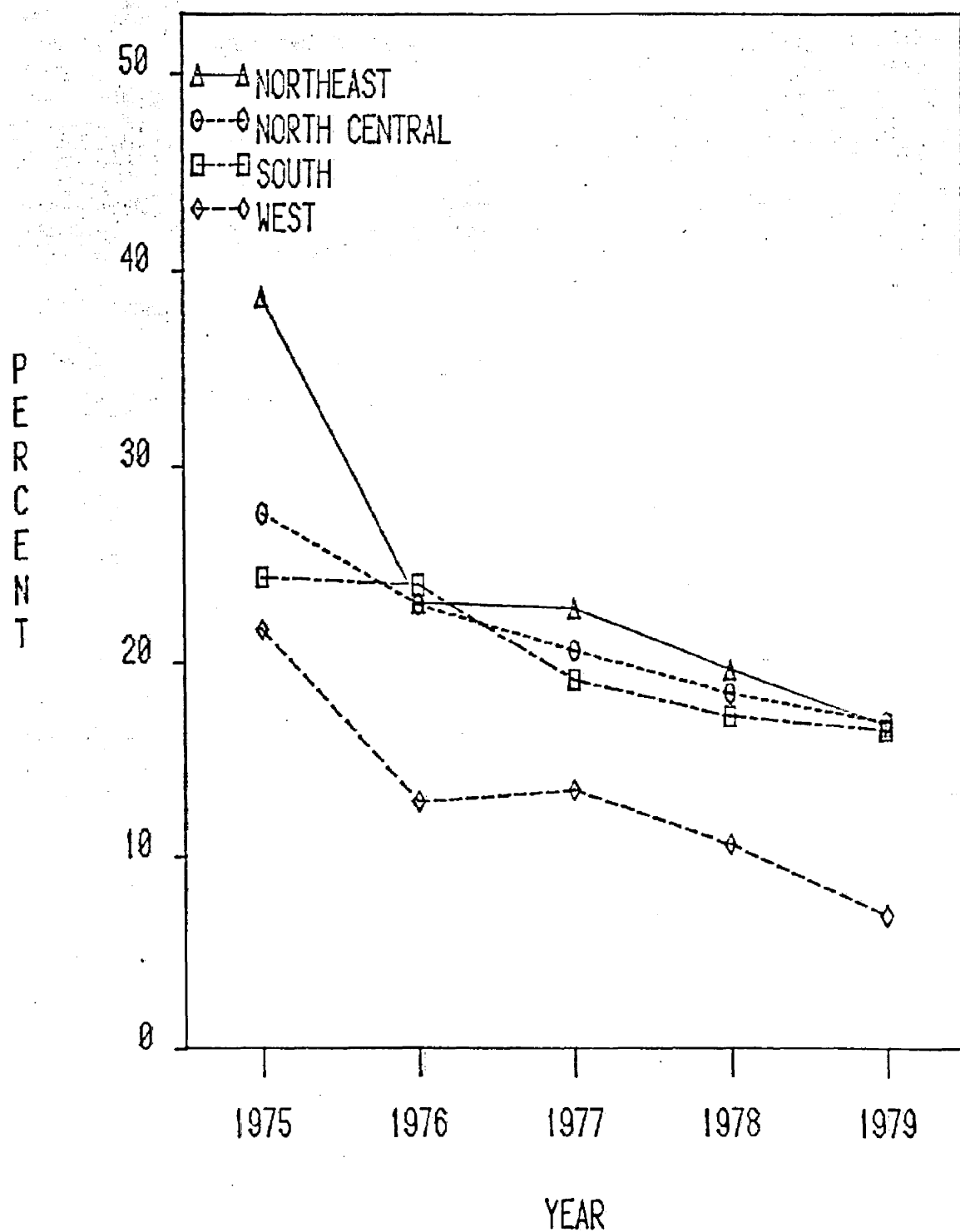
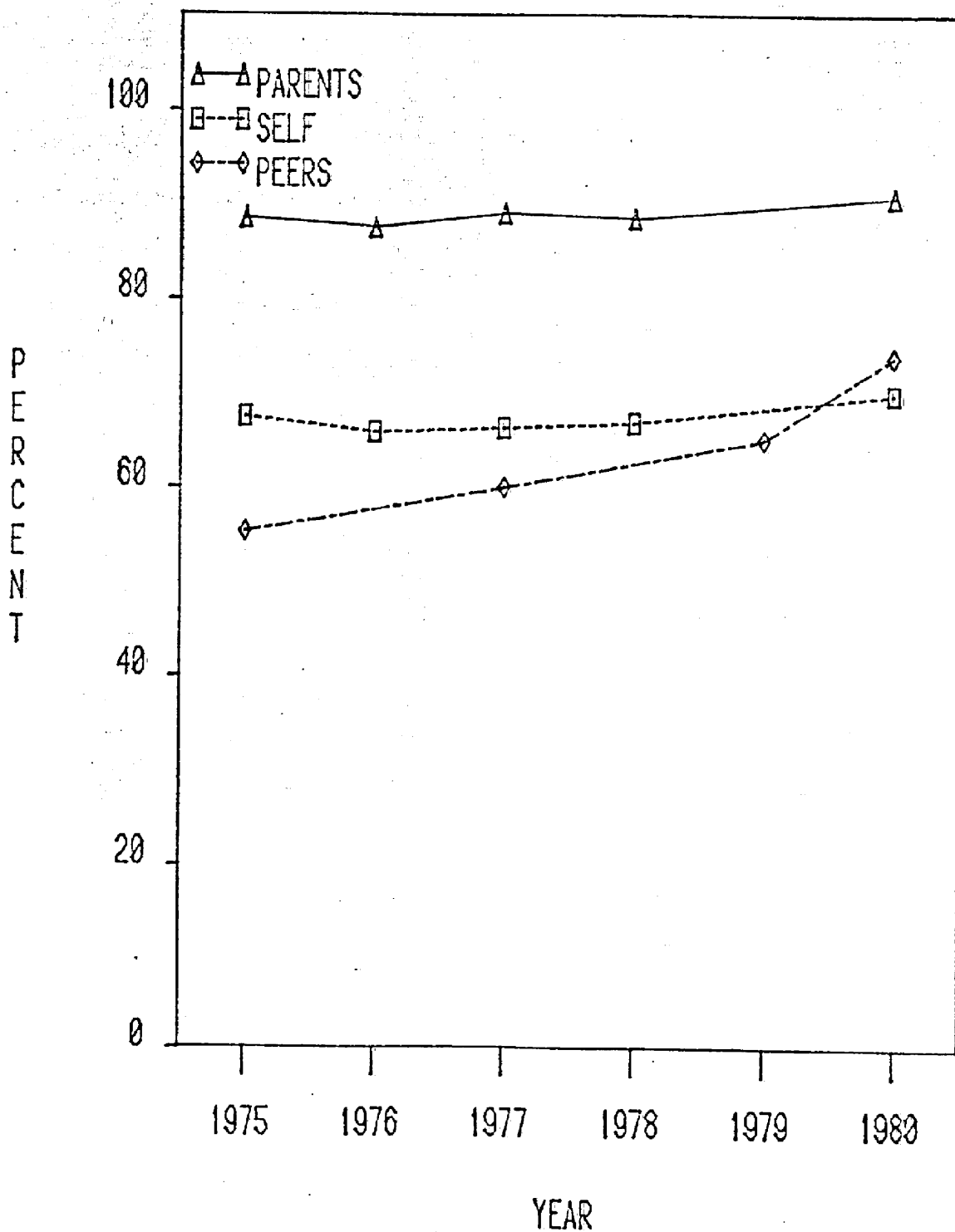


CHART 15  
DEFINITELY OR PROBABLY WILL SMOKE FIVE YEARS HENCE



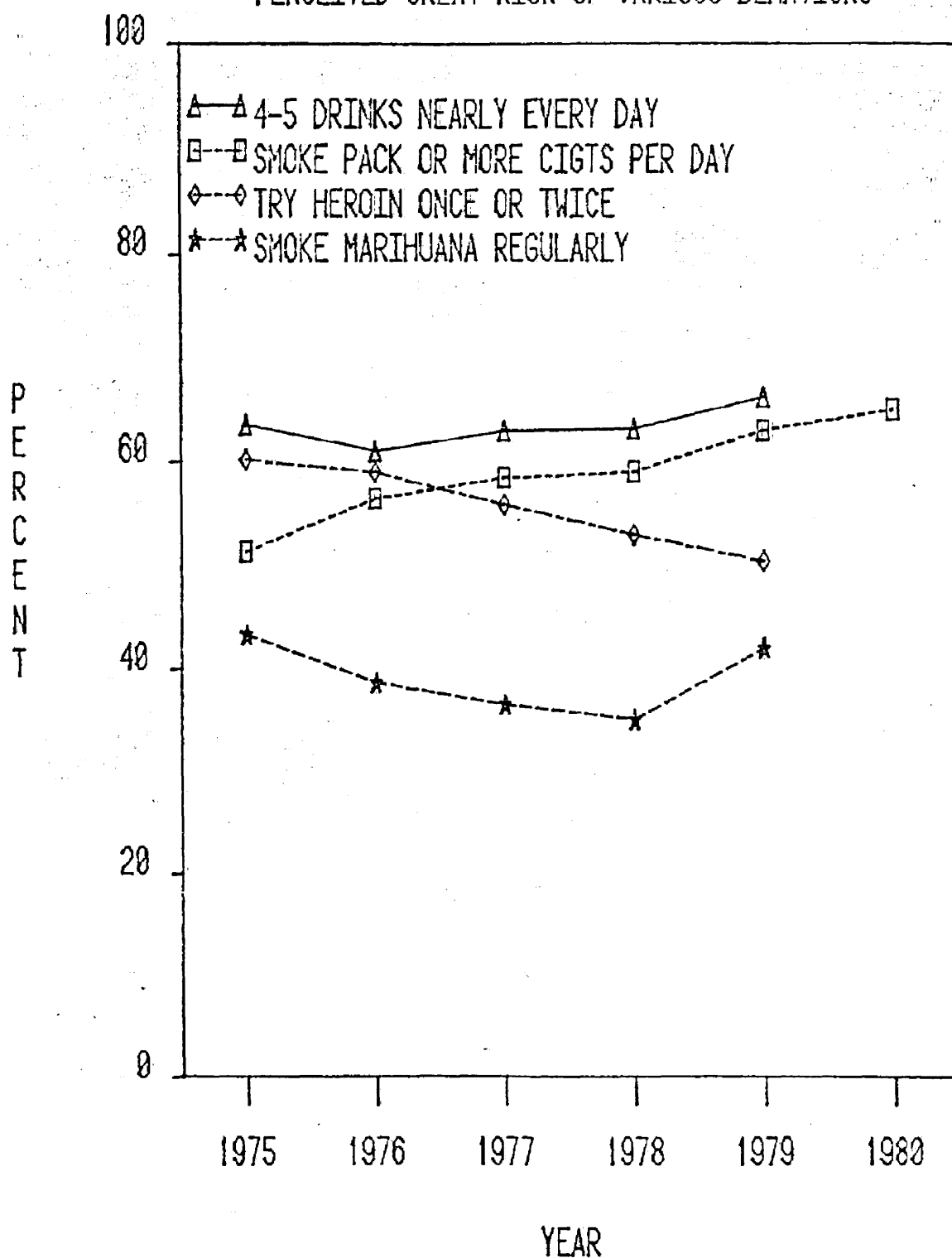
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CHART 16  
PERCEIVED DISAPPROVAL OF SMOKING A PACK A DAY



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CHART 17  
PERCEIVED GREAT RISK OF VARIOUS BEHAVIORS



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